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extension review

United States Department of Agriculture Fall 1984

Profitability in American Agriculture



Profitability For American Agriculture

What is the future for U.S. agriculture? What will make and keep it profitable?

It is the belief of the Cooperative Extension System, as well as of industry, that, while being sorely tried and severely tested, most farmers *can* continue to farm. But those who are not now efficient managers of production, financial, and marketing risks must become such or lose their operations.

Cattle Picture

Burton Eller, vice president for governmental affairs, National Cattlemen's Association, one of several agriculturalists interviewed for this editorial, describes the past 10 years as tough for cattle producers. He points out that "agriculture, unlike the rest of the U.S. economy, has not been experiencing recovery. Further, agriculture, as a basic industry, cannot pass on the costs of high interest rates to others but must absorb them."

John Adams, director, milk regulatory and animal health affairs, for the National Milk Producers Federation, reports that "Milk producers see several question marks on the horizon. Overall milk output is coming down due to the diversion program, but low prices and high interest rates remain a problem."

Extension Role Critical

The Cooperative Extension system, already deeply involved in work with farm operators, is emphasizing marketing and financial management decisionmaking along with management of production. We are increasing emphasis on integrating research and education resources to provide useful decisionmaking models for farmers and ranchers.

What will improve future profitability for the cattle producer? Burton Eller hopes for higher, sustained market prices, lower interest rates, and increased demand including more exports. Producers need to improve their financial management and business skills. The holistic production-marketing-management system approach of Extension, Eller believes, can help to head off the dangers inherent in the traditional method of trying individual new techniques as they come along.

What will help the situation for the dairy producer? John Adams believes that restoring our export market, increasing domestic use of dairy products, and greater use of cooperatives will all improve conditions.

U.S. farmers and ranchers currently receive separate pieces of information from many public and private sources. But the complexity of information available and the expanding capabilities

of electronic technology to process data must be integrated at the operating level. Farmers and ranchers stand to gain more from effective decisionmaking when combining knowledge and technologies themselves.

Conserving The Soil

How can farmers earn a profitable living and practice soil conservation at the same time? Milton E. "Bud" Mekelburg, president of the National Association of Conservation Districts, responds: "Short-term economic conditions, caused by embargoes, high interest rates, value of the U.S. dollar, and declining land values, are causing severe economic stress in the farm sector. Some producers cannot, because of up-front costs, practice the more long-term conservation measures, such as shelter belts or terracing."

"In fact, in the long term, unless conservation is practiced, no farming will remain profitable," he concludes.

Developments In Wheat

What changes in agriculture may be over the horizon? Jerry Rees, senior vice president, National Association of Wheat Growers, believes "a revolution in wheat production practices will be spurred by new technology and changing economic realities. Faced with low wheat prices, static or reduced farmland prices, and high interest rates, the successful wheat producer of tomorrow will seek every available tool to reduce production costs. One way is by increasing yields and reducing input costs per bushel."

Bill Hambleton, county extension director, Fresno County, California, stresses Extension's work with farmers to improve their farm planning. "We're working on a computer program right now to make it interesting as well as practical for growers to do more in-depth financial planning than before."

Extension As Change Agent

Lastly, Hambleton emphasized Cooperative Extension's role as change agent. "As liaison between grower groups and other government agencies, for example, we can do more than just transmit information back and forth. We can be advocates of information we know to be correct."

Because their ability to produce continues to rise, farmers and ranchers will need to rely increasingly on sources of information and educational services such as Cooperative Extension, to regain or maintain profitability. Restoring and maintaining profitability in American agriculture represents perhaps our greatest challenge, one whose outcome cannot be predicted. Our willingness to meet this challenge will go a long way toward ensuring that it will be met and that we will succeed. □

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Fighting The Avian Influenza Virus

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In April 1983, a University of Pennsylvania veterinarian phoned Jay Irwin, Lancaster County Extension director, to inform him that a routine collection of poultry blood samples in eastern Lancaster county indicated a problem: a mild form of the avian influenza virus was showing up in a flock of layers.

Now, more than a year later, Irwin and others have reason to remember that phone message. It was the first signal of a \$160 million dollar disaster that struck Lancaster County's poultry industry, one of the worst agricultural calamities ever to hit Pennsylvania. The somber toll: 11 million Pennsylvania chickens and turkeys killed; hundreds of poultry producers facing economic hardship; eggs for 7 million people and meat for 3 million people destroyed; temporary layoffs of hundreds of poultry workers, and reduction of Pennsylvania poultry exports.

Recently, Marketing and Inspection Services, USDA, has lifted the area quarantine in Pennsylvania. The Pennsylvania Department of Agriculture has also lifted their quarantine. However, premise quarantines will remain in effect until all cleaning and disinfecting procedures are satisfied.

Emergency Declared

When the disaster struck in 1983, Penn State Extension faculty and staff, state and federal officials, and industry representatives acted swiftly to assist the faltering poultry industry. The governor declared an extraordinary emergency, thereby authorizing the formation of a federal-state task force to deal with diagnosis, quarantine, and eradication. At the peak of the epidemic more than 400 task force members were working in Pennsylvania.

Early Eradication Efforts

At the onset of the epidemic, Dwight Schwartz, Penn State Extension veterinarian and noted poultry diagnostician, working with Jay Irwin and University of Pennsylvania veterinarians, verified that the avian influenza virus was present but in a mild nonlethal form. Most infected birds returned to normal in about 10 days.

Irwin, responsible for county Extension programs, made every possible attempt to eradicate the disease quickly. He prepared health security guidelines for each poultry producer in the area. He also scheduled a series of meetings, both area and countywide, to explain the disease characteristics and emphasize the need among poultry producers for strict, self-imposed sanitation and quarantine procedures. He also conducted seminars for practicing veterinarians, stressing diagnostic principles and methods of eradication.

Throughout the summer and early fall of 1983, in spite of every possible effort to convince owners of the seriousness of the problem, numerous flocks became infected by the mild strain of the disease.

Virus Mutates

In mid-October, with the approach of cold weather, the virus mutated, became lethal, and started wiping out large numbers of birds within flocks.

Egg production dropped to zero and eventually all birds within flocks became sick and many died.

Two weeks later, 50 layer and broiler flocks in the eastern section of Lancaster County were exposed to the disease. State Department of Agriculture officials, working with members of the Pennsylvania Poultry Federation, Lancaster County Poultry Association, Irwin, and Schwartz, established quarantine zones in the affected areas.

Producers Hurt Badly

Each day the disease spread to other parts of the county. Poultry producers with exposed flocks had little or no income, debt loads rose, and lifetime savings were wiped out.

At this point, the federal-state task force was formed. Irwin had signs printed and distributed to more than 600 poultry producers. The signs, placed at the entrance to all major poultry farms, read: "*Absolutely No Visitors! Avian Flu Alert!*"

In early November, 40 task force members, consisting of veterinarians and support personnel, were ordered to Lancaster County by USDA and Governor Thornburgh.

Cooperation

Now working directly with task force officials, Irwin provided them with mailing lists of poultry producers, processors, and feed company personnel as well as previous data on area disease outbreaks.

Throughout the epidemic, both Irwin and Schwartz served as a primary link with the task force. Irwin and Poultry Science Extension served as an important liaison with industry through regularly scheduled monthly seminars keeping everyone abreast of the current status of the disease, important regulations, and new information.

Although Lancaster County has the state's largest concentration of layers, broilers, and breeding chickens, there was concern that the virus would infect flocks in other areas and seriously cripple the Commonwealth's \$400 million industry. In counties bordering Lancaster, the combined sale of poultry products totals \$100 million.



Extension agents in these counties immediately contacted producers through newsletters and personnel visits. Penn State Extension specialists, working with Pennsylvania Poultry Federation officials, issued statewide sanitation guidelines.

"Upon hearing of the disease outbreak in Lancaster County, our poultrymen took sanitation procedures and self-imposed quarantine measures seriously," William Murray, Adams County Extension agent, says. "They stayed off of other poultry farms and controlled the flow of traffic to and from their premises."

Disease Spreads

In spite of continued efforts to curb the spread of the deadly virus, more and more Lancaster County chickens became diseased. By November, 100 flocks containing 6 million birds were infected. Until funds were available to completely depopulate entire flocks, producers were advised to bury the dead chickens on their farms. "This," says Irwin, "meant the remaining diseased chickens in the highly pathogenic flocks were giving off the virus and providing the potential for spread."





*Photographs courtesy of
Animal and Plant Health
Inspection Service, USDA*

By Thanksgiving Day, a 10- to 15-percent dip in feed sales was costing one Lancaster County feed store \$24,000 each week in lost income. Special disinfecting procedures for processors were costing \$8,000 per week. Brokers were having a hard time marketing inspected poultry products because New York, New Jersey, and West Virginia restricted Pennsylvania poultry. Also, 14 foreign countries banned imports of Pennsylvania poultry products.

Sanitary Measures Emphasized

At this point, Irwin and Schwartz met with county poultry producers to convince them that it was up to them individually to help control the disease. Schwartz reminded more than 200 flock owners that, in many instances, critical sanitary measures were being ignored.

"I pointed out," Irwin says, "that in addition to laying hen and broiler deaths, 300,000 breeding hens—those used to produce eggs that go to hatcheries—had been killed. This, I told them, would present another problem when they were in a position to repopulate the flocks."

Quarantine Zone Expands

By late December, the virus spread to several flocks in Chester, Berks, Lebanon, York, and Adams counties. The quarantine zone was expanded to include 5,100 miles.

By mid-January, the task force received approval to depopulate those flocks with mild infections in an attempt to completely eradicate the disease. Currently, almost 300 Pennsylvania flocks have been slaughtered, about 90 percent of these in Lancaster County. More than \$34 million in state and federal funds has been spent for depopulation, cleanup, plus indemnity payments for birds killed. Also, state funds were approved for research on virus eradication.

The Amish farmers, whose flocks in Lancaster County number between 5,000 and 10,000 birds and who derive a significant income from this source, were somewhat confused about avian influenza disease control. Amish religious beliefs do not allow them access to radio or television.

Amish groups in various areas asked Irwin to meet with them to discuss disease characteristics and preventative measures.

Meetings With The Amish

Irwin, always accompanied by a veterinarian, met with the Amish in firehalls and schools at periodic intervals. He was successful in helping them keep the virus out of their flocks until mid-December. To date, only a few Amish flocks have been infected with the virus, primarily due to strict sanitation procedures urged by Irwin.

Safe For Consumption

When the disease reached epidemic proportions and before the federal-state task force was established, a Lancaster County communications task force was organized to insure that the food chain remained intact by informing consumers that poultry products were safe for human consumption. This task force included Doris Thomas, Lancaster County Extension home economist, public relations personnel from industry, and the Lancaster Chamber of Commerce.

After meeting around the clock for several days, hearing testimony from growers, suppliers, federation officials and veterinarians, the group held a press conference to inform the media that poultry products were safe and in spite of higher prices, poultry was one of the best meat buys.

Doris Thomas was asked to be the primary spokesperson since she was experienced in media and knew consumer buying habits. Poultry sales dropped 50 percent for a short time and then recovered. Sales in other areas of the state were not affected.

As the new year arrived, 198 flocks had been depopulated; newly infected flocks had been depopulated since the outbreak occurred.

New Programs For Poultry

As a result of the avian influenza epidemic, Pennsylvania Cooperative Extension is initiating sanitary procedures on the farm for cleanup and disinfection of all poultry disease.

Penn State faculty and staff are developing new poultry management, marketing, and nutrition programs to increase production efficiency and help reduce the possibility of future poultry disease outbreaks. And veterinarians are increasing their efforts to find a cure for avian influenza through genetic engineering or vaccination.

Although the outbreak of avian influenza drastically affected the lives of hundreds of poultry producers, there may be long-term benefits taking place. Extension staff are reporting that, because poultry premises were cleaned so thoroughly, minor poultry health problems have practically been eliminated and meat and egg production has been significantly increased. □



Survival Tactics for Limited-Resource Farmers

8 Extension Review

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What can a retired "snake farmer" do? That was the dilemma that Ethiman Spivey faced 2 years ago.

For most of his life, the 65-year-old farmer from Crusoe Island in Columbus County, North Carolina, had supported his family by growing a few acres of crops such as corn and soybeans. . . and by catching poisonous cottonmouth moccasins. He got \$1 to \$2 per snake for the dozens that he rounded up each week. But age and arthritis put an end to that.

Fortunately for Spivey, North Carolina has the Farm Opportunities Program (FOP). That program uses paraprofessions—called agricultural technicians—who work closely with limited-resource farmers like Spivey, showing them how to make better use of their resources, adopt appropriate agricultural practices, and adapt to changing conditions.

The program is coordinated by The Agricultural Extension Program at the state's 1890 land-grant school, North Carolina Agricultural and Technical (A&T) State University

For Impact

In Spivey's case, the Farm Opportunities Program showed him how to take advantage of other resources on his small swampland acreage. With guidance and encouragement from agricultural technician Delane Shelley and supervising agricultural agent James Norris, Spivey decided to try a new farm enterprise.





Now, 2 years later, he is the proud owner and operator of a wood-heated greenhouse where he sells vegetable plants, flower arrangements, and hanging baskets made from native cypress trees. And while his son Tommy carries on the family tradition of "snake farming," Ethiman Spivey is starting a new family tradition and way of life on his small farm. Without the help of FOP, however, Spivey might not have been able to make such a transition. Like most limited-resource farmers, he had little



education (he can't read or write) and he needed the intensive, one-on-one, on-the-farm assistance, that FOP gives to more than 600 limited-resource farmers across North Carolina each year. Like Spivey, these farmers are learning how to do the things they need to do to continue making a living on their small farms.

Four-County Tour

This summer Daniel Lyons, coordinator of the Farm Opportunities Program at North Carolina A&T, organized a tour of FOP farms in four counties in the southeastern part of the state. The purpose of the tour was to show university officials, other Extension personnel, and the general public that limited-resource farmers can indeed survive—and even thrive—when given the right kind of assistance.

Among the farms the tour visited were:

- A 20-brood cow farm operated by a physically handicapped farmer, Gary McPherson. Before participating in FOP, McPherson didn't worm, castrate, dehorn, or practice parasite control on his cattle. He also had them on small pasture. He has since increased his pasture by 300 percent and adopted recommended practices. Now his cattle weigh an average of 400 pounds more each at the time of sale. In addition, FOP helped him develop two catfish ponds for food production.

- Several vegetable farms ranging in size from 13 to 35 acres were visited. Through diversifying their crops, using appropriate irrigation, and improving their marketing, FOP helped these farmers to increase yields and income. For example, by using trickle irrigation farmer Wade Cole increased peppers and cantaloupe production threefold. Another



farmer, Albert Beatty, didn't think he had enough land to do anything with before joining the program. Now he's doing intensive vegetable gardening on 2 acres and recently cleared \$676 from a tenth of an acre of okra.

- Perry Davis, owner of a 30-sow feeder pig farm, learned how improved swine housing facilities could increase his income. After joining FOP, he participated in an energy audit of his facilities and subsequently insulated his hog housing. He also received help on his breeding stock selection and on disease and parasite control. Now, he's getting nine live pigs per litter rather than eight.

- The tour also visited a specialty crop operation, a 27-acre blueberry farm owned by Thomas Smith. After joining FOP, Smith adopted recommended practices and used integrated pest management. He is now grossing \$4,8000 per acre and expects to increase that by adding irrigation soon.

Similar success stories can be found elsewhere in the 20 counties where the Farm Opportunities Program is in place. But, Daniel Godfrey, administrator of the Agricultural Extension Program, notes: "The enterprises on these farms substantiate that there are opportunities and a future for small and limited-resource farmers in our state."

Lost Farms

One real problem, however, is making sure that the farmers will be around to take advantage of such opportunities. Last year North Carolina lost an estimated 3,000 farms. Further, black farmers—are losing their land and farms much faster than other farmers.

It's for these reasons that the North Carolina A&T Agricultural Extension Program also developed the Landownership Information Project (LIP). That project is helping farmers, especially minority farmers, learn their rights and responsibilities as landowners so that they can keep their land and farms.

LIP has done this for 4 years by conducting workshops and forums, publishing and distributing educational materials, establishing a statewide advisory council, and working closely with other concerned organizations such as the Rural Advancement Fund, the Eastern Carolina Rural Development Coalition, and the North Carolina Association of Black Lawyers.

LIP was instrumental in helping the latter organization form the Land Loss Prevention Project in Durham, North Carolina. That project provides free or low-cost legal help to black farmers and others who are in danger of losing their land.

LIP Grant Assistance

Last year the Landownership Information Project received a special grant from Extension Service, USDA, to expand its educational efforts to all states with 1890 land-grant institutions. LIP is currently working with the Extension programs at those schools, helping them

create a greater awareness of the land loss problem in their states and methods for addressing it.

North Carolina A&T is also working on an additional project that should prove very valuable to the state's limited-resource farmers: a model small farm which will be set up on the university's farm complex in Guilford County.

The model small farm will focus on enterprises and alternatives that will improve the lives of limited-resource farmers and help stop the trend of disappearing small family farms.

In addition to developing and refining appropriate small-farm enterprises, the model farm will serve as a training facility for students and farmers.

Family Farm Stability Task Force

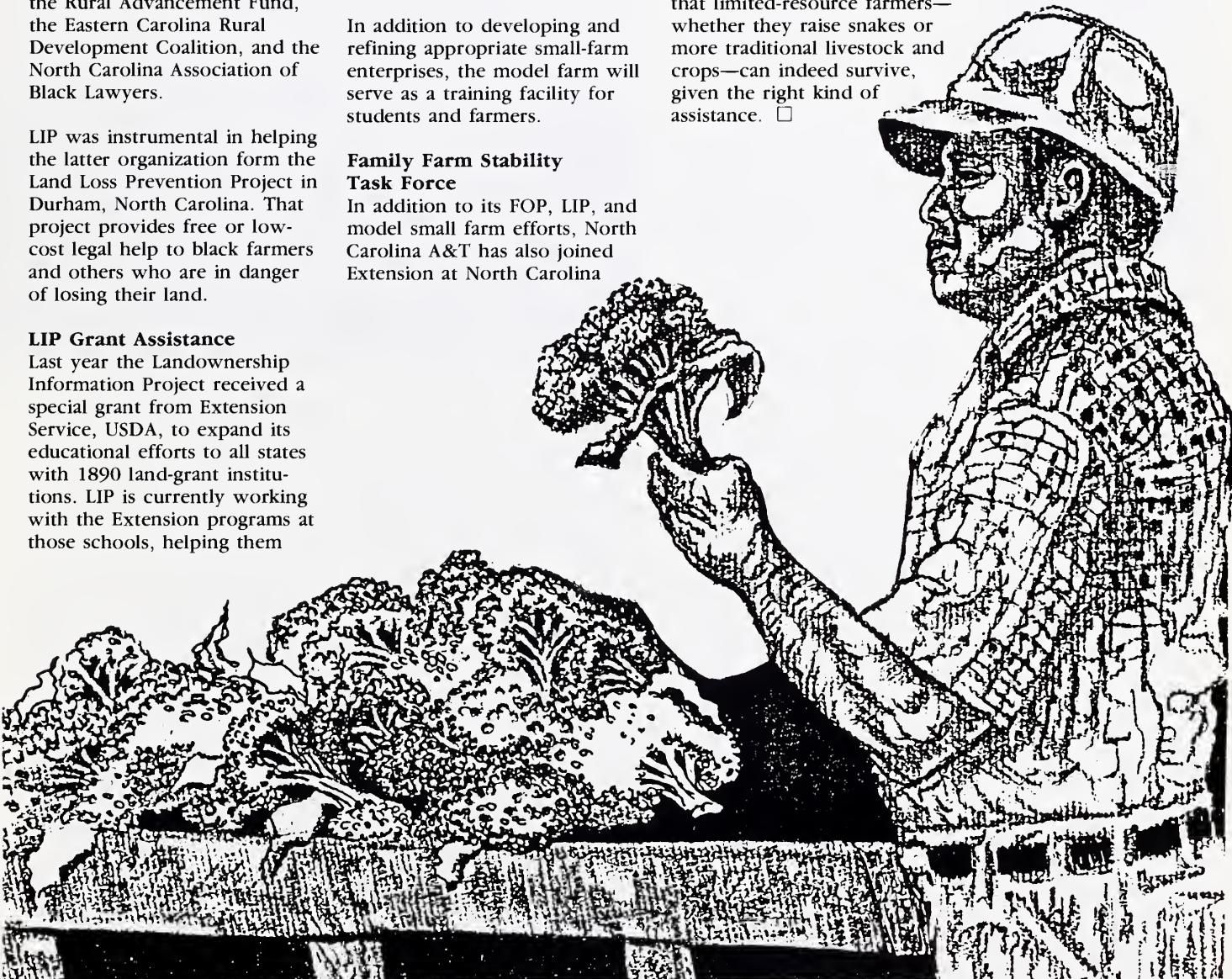
In addition to its FOP, LIP, and model small farm efforts, North Carolina A&T has also joined Extension at North Carolina

State University in forming the Family Farm Stability Task Force.

That task force, composed of Extension personnel from both universities, is examining how policies and programs affecting family farms—especially small and economically disadvantaged farms—can be improved.

It is also looking at the special problems and needs associated with farmland retention by black farmers.

With such programs, the Agricultural Extension program at North Carolina A&T is showing that limited-resource farmers—whether they raise snakes or more traditional livestock and crops—can indeed survive, given the right kind of assistance. □



Freeze Recovery For Florida Citrus

12 Extension Review



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In Florida, a late December freeze caused extensive devastation to the citrus industry and more than \$1 billion in economic loss to the state.

During a 3-day period—December 25-27—temperatures plunged to a low near 16 degrees F. at night with the average low approximately 21 degrees F.

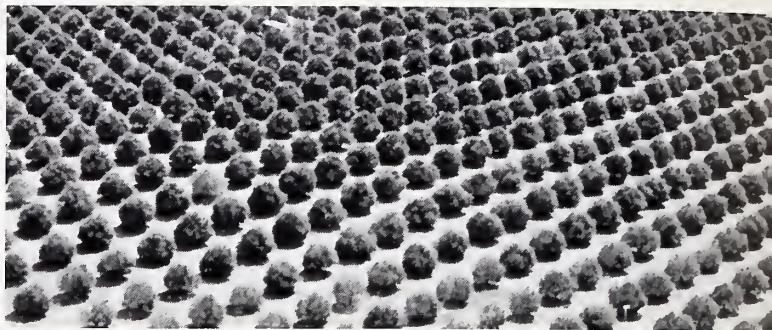
This cold front followed several days of overcast, mild conditions—an unusual situation that predisposes plants to cold damage. While many plants suffered damage, the most serious impact was on the citrus industry in 11 central Florida counties: Pasco, Hernando, Sumter, Marion, Lake, Putnam, Volusia, Seminole, Brevard, Osceola, and Orange.

The Cooperative Extension Service, Institute of Food and Agricultural Sciences (IFAS), University of Florida, through its county Extension faculty, moved quickly to offer appropriate programs to area growers.

Hard Choices

An estimated 250,000 acres of citrus were damaged to varying degrees including 120,000 acres which may be dead, growers must now make many decisions—whether to prune trees, to completely remove trees and reset to citrus, to enter other enterprises, or to wait another year before taking action.

Similarly, workers usually employed in citrus harvesting, handling and processing or in enterprises supported indirectly by the citrus industry must make equally difficult decisions. Extension quickly recognized early the need for additional, more focused efforts to assist growers and workers in the affected region.



To meet this need, the Vice President for Agricultural Affairs appointed a Central Florida Freeze Recovery Task Force. The task force, begun in June 1984, comprises three working groups—Citrus Recovery, Alternative Commodities, and Unemployment—and two analysis teams—Natural Resources and Economic Evaluation. About 40 state Extension and research faculty members, along with selected county Extension faculty, form the task force.

Task force leaders meet regularly with county Extension directors from the 11 counties to monitor needs and track progress.

Working Group Activities
The Citrus Recovery Working Group focuses on rejuvenation of severely damaged, heavily pruned citrus groves and the reestablishment of groves where total kill occurred.

Task force information aids growers, local governments and business communities in coping with problems caused by the freeze. Culture and protection of young trees or severely pruned trees is the focus of these programs.

Not counting land clearing, it costs \$1,800/acre to establish a productive grove. Those want-

ing to reset groves are experiencing another setback with the recent discovery of citrus canker—a bacterial disease—in six Florida nurseries growing the resets. Millions of nursery trees have been destroyed to eliminate the trees carrying this disease.

The Alternative Commodities Working Group assists Florida citrus growers in evaluating alternative commodities as short- or long-term replacement for citrus production. With available resets, it takes about 5 years to get productive trees.

In the near term, intercropping could provide cash flow. Although many affected groves will be rejuvenated or replanted, some growers may decide to use their land for other agricultural commodities. Feed grains, certain vegetables, and other tree crops are being evaluated for these lands.

The Unemployment Working Group is helping families to cope with the resulting impacts upon jobs and income. Their goals are to provide information concerning available community resources, future employment options, family stress management, and family finances and budgeting.

The location and characteristics of the unemployed have been described and the needed educational programs identified. As a first step, an EFNEP unit in the most severely impacted county was formed and an existing unit in another seriously affected county was expanded.

Analysis Team Activities

The analysis teams provide data and regional analyses on resources and impacts important to all work groups. Freeze hazard areas, freeze probability,

soil suitability and water availability analyses, using remote sensing when appropriate, are being assessed to aid the task force. An evaluation plan was designed to monitor the effectiveness of the program.

Why is IFAS responding to this need? In July 1984, the Florida Crop and Livestock Reporting Service and the Florida Department of Agriculture data were used by the task force to estimate the total on-tree value of citrus losses (fruit loss) at \$186 million in the 11-county area.

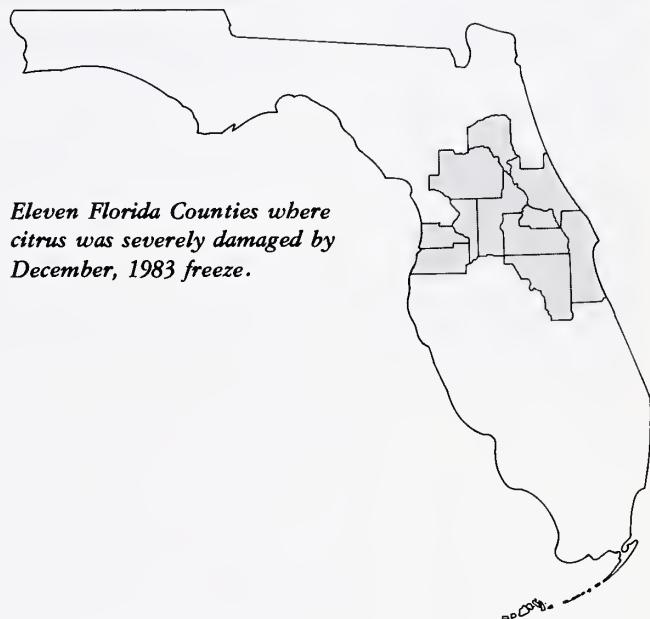
Forty million boxes of fruit in the 11 counties and 60 million boxes of fruit statewide are also estimated losses. The total losses of 40 million boxes of citrus would have generated pick-and-haul expenditures of \$63 million.

Losses associated with packing and processing were estimated to be about \$210 million. The task force's Economic Analysis Team arrived at a revised, combined direct loss estimate in September 1984 of \$460 million in the 11 counties and a direct statewide loss of nearly \$700 million.

Capital loss is estimated at \$7,000 per acre, and the freeze killed approximately 120,000 acres of groves statewide and 85,000 acres in the 11-county area. The capital loss is equal to roughly \$840 million and \$600 million, respectively. Combining all loss-estimates in the 11 county area places the direct loss at over one billion dollars.

Economic Loss Severe

Obviously, the total economic losses are much greater because these estimates do not include reduced purchases of chemicals, fuels, and other indirect expenditures. IFAS faculty, especially



Eleven Florida Counties where citrus was severely damaged by December, 1983 freeze.

county Extension faculty, monitoring the situation since the freeze, are providing necessary programs suggested by the interim assessments.

State and county Extension staff will continue to assess client needs and determine their reactions to the educational programs based on task force guidelines.

When the task force completes its mission in December 1984, the evaluation effort should show that Extension educational programs were vital to central Florida's recovery from the most severe freeze of this century. □

Financial Fitness For Farmers

14 Extension Review

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Today more than ever, farmers need strong financial management skills for profitmaking and even survival. Many are acquiring these skills by participating in Extension educational programs in farm financial management.

These programs assist producers in preparing and analyzing cash flow and other financial statements, developing improved plans for organizing farm enterprises, and making effective marketing decisions. By participating, producers learn to develop survival strategies and set realistic goals for their particular situations.

One-On-One Assistance Increased

Individual assistance is critical to solving major financial problems. Many states are increasing their one-on-one assistance efforts, especially for financially distressed farm families. During the past year, Minnesota and Illinois estimate that they gave individual assistance to more than 5,000 farmers in each state. Farmers analyzed financial problems and prepared detailed plans to deal with them.

Iowa estimates that about one-third of farm families there have debts equal to 41 percent or more of their assets. About 30,000 families located in all areas of the state are carrying 65 percent of the total Iowa farm debt.

Recently, with \$200,000 appropriated by the state legislature and redirected state funds, Iowa began a comprehensive program directed at helping these farm families and rural communities deal constructively with financial adjustments occurring in agriculture.

Iowa's program, called ASSIST, consists of four parts: General Awareness, FarmAid, Community Resource Committees, and Agricultural Credit Short Courses.



The General Awareness portion of the program aims to inform community leaders and officials of the scope and severity of farm financial problems through local meetings led by county Extension directors. At the first round of meetings Extension reached 1,500 community leaders.

FarmAid, the second part of the program, is a strengthened, ongoing farm financial analysis and counseling effort offered by Extension in cooperation with farm lenders. Following the 1983 drought in southern Iowa, Extension provided individual counseling and assistance to over 1,000 farm families.

Involving The Community

The third part of ASSIST helps citizens organize Community Resource Committees in their areas to assist farm families and the community during farm stress situations.

Extension helps organize and provide training for individual committees. Once established, however, committees select their own leadership, goals, and activities.

Agricultural Credit Short Courses, the fourth part of the program, offer classroom training for agricultural lenders, attorneys, professional farm managers, and farm financial advisers who work with financially stressed farm families.

Major topics covered in approximately 15 hours of coursework are financial planning and analysis, tax and legal concerns in financial restructuring, and communication and counseling techniques. By December 1984, Iowa will have completed 12 schools throughout the state.

Highly Individualized Assistance

Some states now offer highly individualized assistance to producers for a fee to cover some of the costs. Nebraska implemented such a program in November 1984 with \$200,000 in funding from the state and \$50,000 from Extension Service, USDA.

The pilot program, Managing for Tomorrow, offers extensive financial management assistance to farm couples for a \$200 fee, which covers a portion of the costs. The actual cost of services provided is estimated at \$600 to \$1,000 per family.

Workshops Held

The program begins with group workshops held 1 day a week for 4 weeks. During these sessions, financial management analysts instruct farm couples in practical financial management principles; acquaint them with information needed to analyze their farm or ranch; and assist them in gathering and organizing data for input into a computer.

Later, in individual consultations, financial management specialists help families analyze their business situations and develop plans for the coming year. A committee of additional agricultural professionals are also available to review each family's analysis and projections, and offer alternative ideas for consideration.

Followup Sessions Included

During several followup sessions, Extension specialists review each couple's financial situation and progress, and start them on planning for the following year.

Farm lenders are cooperating with Extension to promote this program. Some are paying one-half of the fee. At least one lender has offered to subtract \$200 from the interest bills of farmers who complete the program.

Working with at least 10 but no more than 20 couples in each group, Nebraska expects to reach 800 people by spring 1985.

Ongoing And Future Efforts

Minnesota is organizing a new Farm Financial Management Center that will be used to conduct educational programs with farmers. Minnesota will also work closely with other Extension Services to help them in their program efforts.

Missouri is continuing program efforts started several years ago for economically distressed farmers and planning new activities for the future as well.

Missouri's Troubleshooting Program, launched in 1982, helps farmers analyze their total farm business operations; pinpoint major problem areas—financial, production, and marketing; and develop survival strategies needed until "better" times.

The program reaches farmers through clinics, meetings, and individual consultations. Extension also disseminates information through newspaper articles, newsletters, radio and television programs, and publications.

Family Farm Development Program

Extension's Family Farm Development Program, now about 5 years old, helps individual farm families acquire and use resources to develop a profitable business. Farmers learn financial management techniques, including keeping and maintaining farm records; using farm inventories, annual sales, and production expenses to communicate to lenders and to monitor business growth; and developing long-range plans compatible with their particular circumstances.

Over half of the approximately 300 families participating in this program have developed long-range farm plans. About 20 percent of participants estimate they would not be in the farm business today had they not participated in this program.

Missouri's educational thrust over the next several years will focus on providing indepth farm financial management courses for farmers who want to upgrade their business skills. Classes structured similar to college level courses will include 24 hours of classroom work, plus outside assignments, on various financial management topics.

Agricultural lenders will cooperate with Missouri Extension in selecting couples who should participate.

Working With Agricultural Lenders

Along with Missouri, many other states are involving agricultural lenders and the Farmers Home Administration (FmHA) in educational programs. Most states have increased their efforts to provide training for lenders to improve their evaluation of farmers' loan applications.

Extension is also supplying lenders with information and assistance on cost and return data, and analytical tools, including computer financial management programs.

Expanding Computer Use

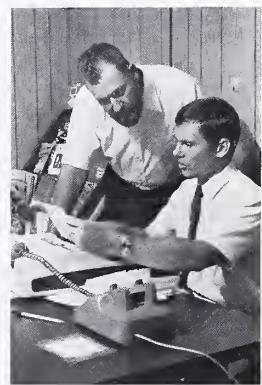
Extension farm financial management specialists are increasingly developing and using computer programs to help farmers make cash-flow projections; organize plans for their farms; analyze profits from farm investments; prepare financial statements; keep farm records; and provide estimates on production costs. Specialists also are using computers to make more efficient use of their time.

Minnesota has developed a computerized financial management program, called FINPACK, which is being used extensively in a number of states.

National Initiative

In "Challenge and Change...A Blueprint for the Future," Extension Service-USDA identified Financial Management as a national initiative for emphasis in the 80's. State Extension Services across the country have strengthened and expanded farm financial management efforts to help farmers help themselves.

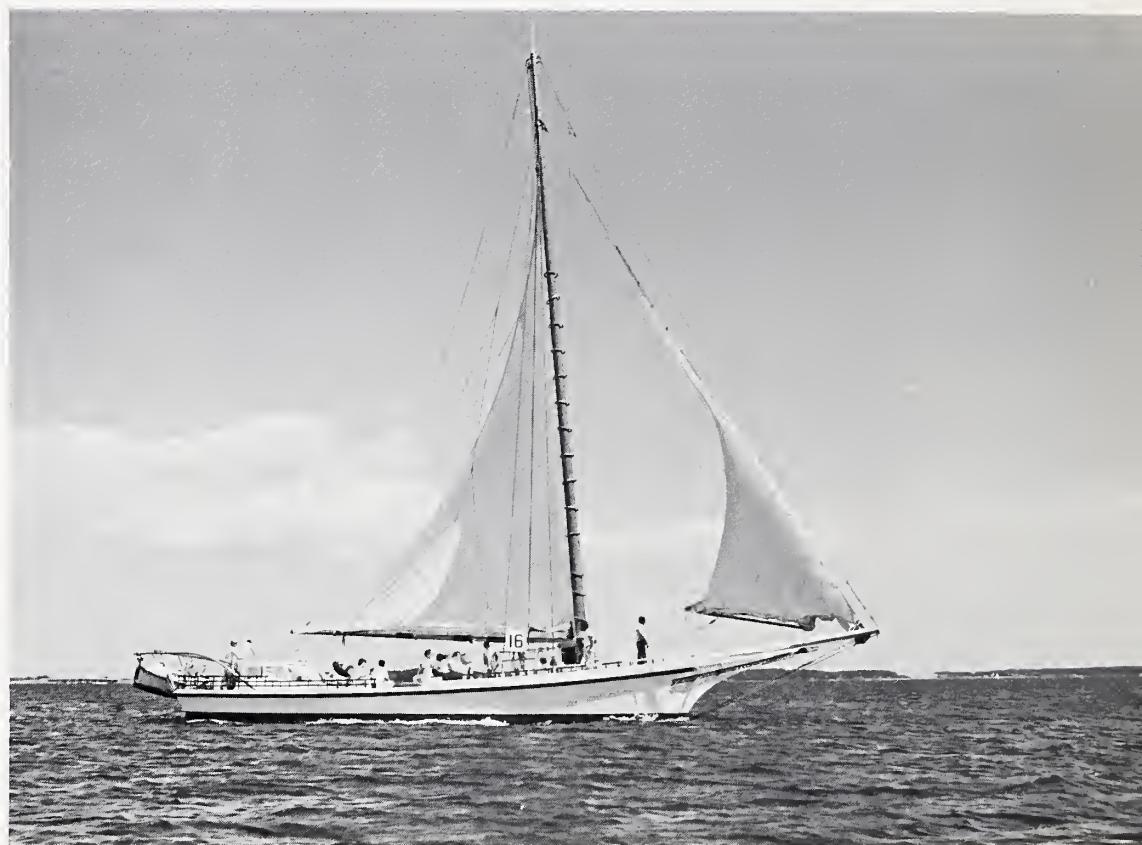
Continued support and expansion of educational programs will enable more farmers to improve their business skills, resulting in higher profits for them and a more productive and efficient agricultural system for us all. □



Partners With The Bay

16 Extension Review

Kathleen A. DeMarco
Extension Television
Specialist
University of
Maryland, College
Park



The largest inland estuary in the world, the Chesapeake Bay, posed a large problem for agricultural communicators in Maryland last year. It still does. State and federal experts found that pollution was ruining the pleasures and profits from this marine-rich body of water.

Industry sometimes let chemicals go into the Chesapeake; municipalities contributed; as did boaters and

waterfront residents. And some of the blame fell on agriculture. Nonpoint pollution from animal waste and fertilizer runoff and soil erosion seemed to be making its way from farmlands to the Bay, as well.

The challenge for agriculture communicators was twofold; to alert farmers to their role in the cleanup, without making others think farmers are the only polluters.

The solution hinged on encouraging growers to be part of the effort to save the Chesapeake; the communications strategy became a campaign of awareness and education, using various media and media communicators.

Partnership in communications became rampant. More than a half dozen state and federal agencies joined forces under the umbrella of the Maryland State Soil Conservation Committee. Serving on one of two

subcommittees, some would study the technical aspects of the Environmental Protection Agency's massive report on the Chesapeake while others would seek ways to disseminate the scientific recommendations to agricultural and urban publics.

Developing The Information Campaign

In late summer 1983, the information group, serving under the leadership of agricultural administrators at The University of Maryland Cooperative Extension Service, began to develop the campaign around the theme, "Maryland Farmers: Partners with the Bay."

Early efforts to publicize the theme took the form of promotional items like lapel pins and farmer caps that sported the

"partners" logo. This was a symbolic intertwining of the land, represented in a single stalk of corn, and the water, seen in the curve of a single wave.

But human resources got the job done. As the campaign advanced beyond novelty items, the more serious efforts of print and electronic journalism took precedence, with support staff from the Cooperative Extension Service (CES) and Soil Conservation Service (SCS) assigned to handle media production.

By fall 1983 videotaping of soil conservation sites began, so communicators could gather a library of footage before the snows fell. Meanwhile, information kits were assembled: glossy folders held printed materials that explained the finer points of nonpoint pollution control for press and legislative groups.

Best Management Practices
In the spring of 1984, the technical subcommittee's report was out and Best Management Practices (BMP's) were in. Terracing and grass waterways, both methods for keeping soil and nutrients on cropland, became the topics for the first video releases to regional television stations. Communicators wrote news releases on conservation tillage, animal waste control, nitrogen, and phosphorus for area newspapers and magazines.

Communicators also developed educational fact sheets on nonpoint pollution and the history of agriculture and the Bay. Copies of the news releases, fact sheets, and television scripts were included in the information kits; they helped explain the "partners" program during one-on-one promotion. Packets also went out to CES and SCS county offices. Radio interviews on reel-to-reel tape reached a statewide audience.

After distributing the spring releases, geared for planting time, the education subcommittee looked ahead to the fall harvest season.

They planned more fact sheets, asking Extension and SCS specialists to write them. Out in the field, agency personnel used agricultural field days to highlight engineering practices, good for controlling runoff.

Further Efforts

As thoughts turned toward fall, the postproduction of television materials concluded and distribution began. This time, both urban and rural audiences were media targets, as the problems of overfertilization of lawns and the use of home phosphate detergents were put before the public.

Meanwhile, other kinds of support materials, such as slide sets, took shape. The communications partnership even began to extend beyond government to include advocacy groups committed to helping the Bay; a joint publication for homeowners is underway.

Cleaning up the Chesapeake Bay will take a long time and demand the ongoing cooperation of all sectors of society. By apprising farmers of their role in controlling nonpoint pollution through continual educational messages, the phrase "Partners with the Bay" will become more than a slogan; it will be a reality. At that point, agriculture will not be a part of the problem, it will be part of the solution.

The communication process remains an essential part of that challenge . . . to keep the Chesapeake Bay a national treasure. □



Wisconsin WRAPs Illegal Residues

18 Extension Review

Robb Hall
Extension WRAP
Program
Information
Specialist
University of
Wisconsin

WRAP - Wisconsin Residue Avoidance Project

DO YOU...

- * Give Sulfa Drugs to Calves
- * Give Streptomycin or Penicillin
- * Use Antibiotics as Preventatives
- * Inject Antibiotics in Food

If It May Be Meat

Don't Treat

- You are legally responsible if marketed animals contain drug residues.
- Read drug labels and follow withdrawal times—we all lose with drug residues.
- For more information ask your county Extension agent or contact The Wisconsin Residue Avoidance Project 1655 Linden Dr. Madison, WI 53706. (608) 262-2502.

UWEX University of Wisconsin-Extension

"If it may be meat, don't treat!" That's one slogan which the Wisconsin Residue Avoidance Project (WRAP) staff use to warn farmers about the misuse of antibiotics in meat animals. In our effort, which goes far beyond slogans, we have used many information and evaluation techniques. One result should be a larger role than before for local Extension agents.

The University of Wisconsin Cooperative Extension WRAP project is part of a 33-state project to reduce illegal drug residues in slaughtered animals. The project is funded by Department of Agriculture's Extension Service with pass-through funds from the Food Safety and Inspection Service (FSIS).

First, Extension attempted to identify causes of the problem by searching the literature for current drug information and studying violations in Wisconsin during 1979 to 1982. Illegal sulfa residues in calves less than 3 weeks of age (bob veal) were the biggest problem.

Next violators were sent questionnaires on their calf health management and drug use practices. Wisconsin dairy producers selected at random were also asked such questions.

Poor Practices

"Several practices caused illegal drug residues," says Robert Hall, Cooperative Extension veterinarian and co-leader of WRAP. "Apparently, many producers use drugs instead of recommended management practices."

Others are surprisingly unaware of withdrawal times for antibiotics and sulfa drugs. Illegal antibiotic residues seem to result from poor management or ignorance, not a deliberate attempt to violate the law."

Survey results guided the information/education campaign. Respondents had indicated current and preferred information sources.

They received health/management information from agricultural magazines, veterinarians, feedstore/co-ops, Extension newsletters, and local farm-oriented newspapers. Most of these sources were named as *preferred* sources of information.

Educational Effort

WRAP's educational effort, which began in May 1983, involves articles for farm press; direct mailings; Extension publications and fact sheets; a computer cattle health/management program; and slide sets.

"Monitoring the effects of our education effort is a high priority," states George Danchuk, an adult educator and WRAP's project evaluator. "Although the project is too new for comprehensive evaluation, our monitoring surveys indicate that our efforts are improving producers' drug knowledge and animal health techniques."

A 1984 "midstream" analysis sought the opinions of Extension agents and administrators as well as producers and agribusiness professionals.

Producers who responded to the initial surveys tended to rank the county agent behind veterinarians and farm press as sources of animal

health and management information. So WRAP has attempted to bolster agents' credibility.

Agent Role

The groups surveyed thought Extension agents did have a role in drug use and animal health/management education. Survey results indicated that people's knowledge about drug use and animal health practices increased with agent contact.

Several agents are participating in a pilot project to increase their role in educating farmers about drug use and animal health/management. Some agents will ask local producers and agribusiness to form committees to help reduce illegal residues in meat.

Other agents will cooperate with local veterinarians. The agents will also distribute material to feedstores, co-ops, and other outlets for livestock antibiotics.

All pilot counties have copies of slide-tape presentations developed by WRAP. Information will be disseminated through local newsletters, radio programs, and columns. Timely information will be organized with a computerized "tickler file" calendar to remind agents of current animal health topics and provide sources of additional information on the subject. The emphasis will be on disease prevention.

Further WRAP Goals

WRAP will monitor changes in producer knowledge, attitude, and behavior. One goal is to facilitate agents' communication with producers and help make agents more effective. This practice will help reduce illegal residues and enhance agents' effectiveness elsewhere.

No single educational approach can solve Wisconsin's problem with illegal drug residues. So our efforts are flexible enough to respond to changing conditions with Extension's ability to educate and inform.

Illegal drug residues illustrate a paradox in agriculture. Producers cherish their independence, which they say has helped foster tremendous productivity. Yet actions of a few producers jeopardize that independence and threaten to erode consumer confidence in food. One of WRAP's goals is to ensure that independence while maintaining consumer confidence.

If you have questions or comments or would like survey summaries, contact:

The Wisconsin Residue Avoidance Project
Department of Veterinary Science-Extension
1655 Linden Drive

Madison, Wisconsin 53706
Phone (608) 273-0538 □

**COOPERATIVE EXTENSION PROGRAMS
UNIVERSITY OF WISCONSIN-EXTENSION**

UWEX

**Veterinary Science Building
1655 Linden Drive
Madison, WI 53706**

VETERINARY SCIENCE EXTENSION

The enclosed material has been sent from the Veterinary Science-Extension office. We hope you find it useful. If further assistance is needed, please contact us or the Extension office in your county listed on the back of this message. Our purpose is to serve you and all Wisconsin residents. Please call on us.

Extension Veterinarians

John R. Andersen
John R. Andersen, DVM
608-262-2502

WRAP—WISCONSIN RESIDUE AVOIDANCE PROJECT

U.S. Dept. of Agriculture

U.S. RETAINED

Use Livestock Drugs Properly

With Drug Residues

**LLEX
UNIVERSITY OF**

The Food and Drug Administration can hold you legally responsible if you market animals with drug residue

FIVE DRUG USE TIPS

- When in doubt—Call a veterinarian
- Read the label
- Use proper dose
- Calculate drug withdrawal times
- Keep accurate records

**WRAP
Wisconsin Residue Avoidance Project**

**UWEX
University of Wisconsin-Extension**

The Bug Patrol

20 *Extension Review*



Andy Duncan
Editor
Oregon's Agriculture
Progress Magazine



Bug scouts don't get merit badges, but they are receiving applause and money from growers in two of Oregon's juiciest industries.

Insect scouting services, using techniques pioneered in Oregon by experiment station researchers and Extension Service specialists and agents, have sprung up in Medford and Hood River to serve the state's pear and apple growers, who produced more than \$50 million worth of fruit last year.

Through the services, growers hire a consultant who monitors pests in their orchards, regularly assesses the potential for fruit damage, and outlines possible strategies for dealing with the bugs, including simply letting them alone if there aren't too many.

Growers subscribing to the two services, both basically one-person operations, are looking for a way to curb the skyrocketing cost of pest control.

By keeping closer tabs on bugs like codling moths, spider mites, and pear psylla, growers hope to spray their trees only when absolutely necessary or when the pests are especially vulnerable. Also, they hope to avoid spraying trees when the chemicals would wipe out populations of beneficial insects like ladybird beetles that help keep pests in check.

Savings On Spray Costs

In some cases, the approach seems to be working.

"I still have problem spots in my orchards, but spray costs are going up terribly and I know I've saved money. There's no question about it," says Ed Earnest, a Medford pear grower and packer who is unabashedly enthusiastic about the scouting service he used the last two growing seasons.

"It's the only way to go," says Al Brown, a Hood River grower who uses a scouting service. "I used to have three chemical salespeople come by and each recommend a different spray. You don't know what to do. You might put on all three sprays. Now, an insect scout says, 'Don't spray till I tell you to,' and I don't."

IPM At Work

Both of Oregon's fledgling scouting services (for pears and apples—there are similar services for other crops) are 3 years old. The one in Medford is operated by Wayne Rolle, a 32-year-old former entomology research assistant at OSU's Southern Oregon Agricultural Experiment Station at Medford.

The Hood River scouting service is operated by 41-year-old Gary Fields, formerly a technician at OSU's Mid-Columbia Agricultural Experiment Station at Hood River.

That both Rolle and Fields used to work for OSU is no coincidence. For more than 10 years, scientists at the Medford and Hood River branch stations have studied the benefits of insect scouting as part of integrated pest management, or IPM, a program which stresses coordinated use of chemical, cultural, biological, and other pest control strategies.

To take a more precise approach to pest control, growers need more data about the insects in their orchard, say the scientists spearheading IPM research with pears and apples, Pete Westigard at Medford and Bob Zwick at Hood River.

Does Scouting Pay?

In a study with 1983 crops, Westigard and others found that Medford pear grower Ed Earnest saved about \$40 an acre on spray costs, after paying scouting costs, compared to a grower with a similar orchard who did not use the insect scouting service.

Not everyone is convinced scouting can pay its way, though.

However, Westigard says, "The cost-per-unit price of scouting makes it more feasible for the big operator than the small one, although the small operator certainly has more flexibility."

The four pear growers who used Rolle's Medford scouting service last season—two large-acreage growers and two small-acreage growers—farm a total of about 2,000 acres, about 15 percent of southern Oregon's total pear acreage.

In Hood River, where farms are smaller, Fields estimated his 37 clients farm about 10 percent of the Hood River Valley's 15,000 or so acres of pears and apples.

How do the scouts themselves see the prospects for their business?

A Matter Of Time

"I guess that slowly, this sort of thing will gain wide acceptance," says Rolle. "I can walk through an orchard with most any grower and he'll know as much as I do about the pests. But growers don't have time to keep track the way you must for IPM."

Regular and precise sampling procedures are a key to this program, and there must be a real commitment to collecting accurate data.

"I've had a few dropouts," Fields says. "But the first year I saved a fellow over \$4,500 on 52 acres—over and above my fee. I'm sure it's just a matter of time until others get in. □



Reprinted from a publication of The Oregon Experiment Station, Oregon State University, Corvallis. Photograph courtesy of Dave King.

Pigs Pay Off!

Tina T. Scarbrough
Extension News Editor
Mississippi State
University

Two 4-H youth in Lee County are learning that pigs pay off in more ways than one. Nea Taylor, age 9, and Ken Robison, age 13, are taking part in a new swine program designed to teach youngsters money management while showing pigs.

Taylor and Robison are the first participants in the new program. After the Lee County 4-H Advisory Council identified a swine program as a need, Council members developed guidelines with the Lee County Extension Service, the Big Ten Development Association, and the Bank of Mississippi.

Financing The Venture

When Nea Taylor decided she wanted a pig, she knew it would involve more money than her parents were willing to spend. Instead, she enrolled in the 4-H swine program and got a loan from the bank.

"Like adults, Ken and Nea were required to get a cash flow statement to secure the loans," says Glenna Fennell, 4-H youth agent in Lee County. "They went through all the paperwork adults do to get loans."

James Moore, assistant vice president, and Charlie Greer, first vice president, of the Bank of Mississippi, explained to the 4-H'ers their responsibility in paying back the \$1,000 each borrowed.

"As former 4-H'ers ourselves, Charlie Greer and I knew how 4-H could benefit youth," Moore says. "Through 4-H, the Bank of Mississippi hopes to teach them the importance of financial management."

Help With Stock Selection

Once the 4-H'ers had their money, Greg Giachelli, executive director of Big Ten Development, selected the best stock possible for them. "My part in the swine program is to keep a watch on what the 4-H'ers are doing," he says. "I bought their gilts and helped them with their feed selection and vaccinations."

With the pigs in their possession, the 4-H'ers were ready to begin feeding and caring for them. At showtime, the premiums they earn will go toward paying off their loans. Both Taylor and Robison are on the Lee County Junior Livestock Judging Team and soon will compete in the district contest.

The 4-H'ers had their pigs bred. By selling most of the young pigs, they can pay back more money. "By selecting the ones to keep I think I have become a better swine judge," says Ken Robison.



Young Mississippians
Nea Taylor and Ken
Robison are learning
all about the world of
money management
while participating in a
4-H swine project.

Program May Expand

Billy Robison, Ken's mother, says she's pleased with the program. "I think Ken has learned the value of a dollar besides learning more about swine," she says.

The Bank of Mississippi plans to expand the program if it continues to work well. "The same program could be administered in other Mississippi counties through our branch banks," Moore says. "If more youth can learn what these have through the 4-H program, it is worth our support." □

TV: Neglected Teaching Tool?

Television's biggest advantage is that it reaches a lot of people. It may surprise many that the farmer, a daybreak-to-dusk worker, is a heavy television viewer. The farmer tends to view heavily at mid-day and watch more news than other programs.

It is unfortunate that this medium has often been neglected by Extension as a tool to provide our clientele with educational information. Television offers many advantages over other educational methods.

These advantages are demonstrated by my live farm news segment on Huntsville's WHNT-TV. The segment, which shows 3 times a week, consists of broadcasting the futures prices, local cash crop prices, the day's agriculture news and Extension reminder, and concludes with a news story provided by Auburn University and the Information Service of Mississippi State University.

What Ratings Reveal

The November 1983 Ratings revealed that the noon news show had "an average 37 share." This means that 37 percent of all TV sets that were turned on were tuned to the noon news show. A decent, if not overwhelming figure—until one realizes that it translates into 37,348 households or 53,000 people.

Television has proved personally cost effective—especially if the figures include agent, secretary time, and travel. With this data incorporated,

television costs 62 cents per thousand people reached. By comparison, a two-page newsletter costs \$277.58 per thousand people reached.

The message gets across quickly. Those on radio can make the same claim, but television reaches a vaster audience. And this media sends visual images as well as words to reinforce any message.

Obtaining Air Time

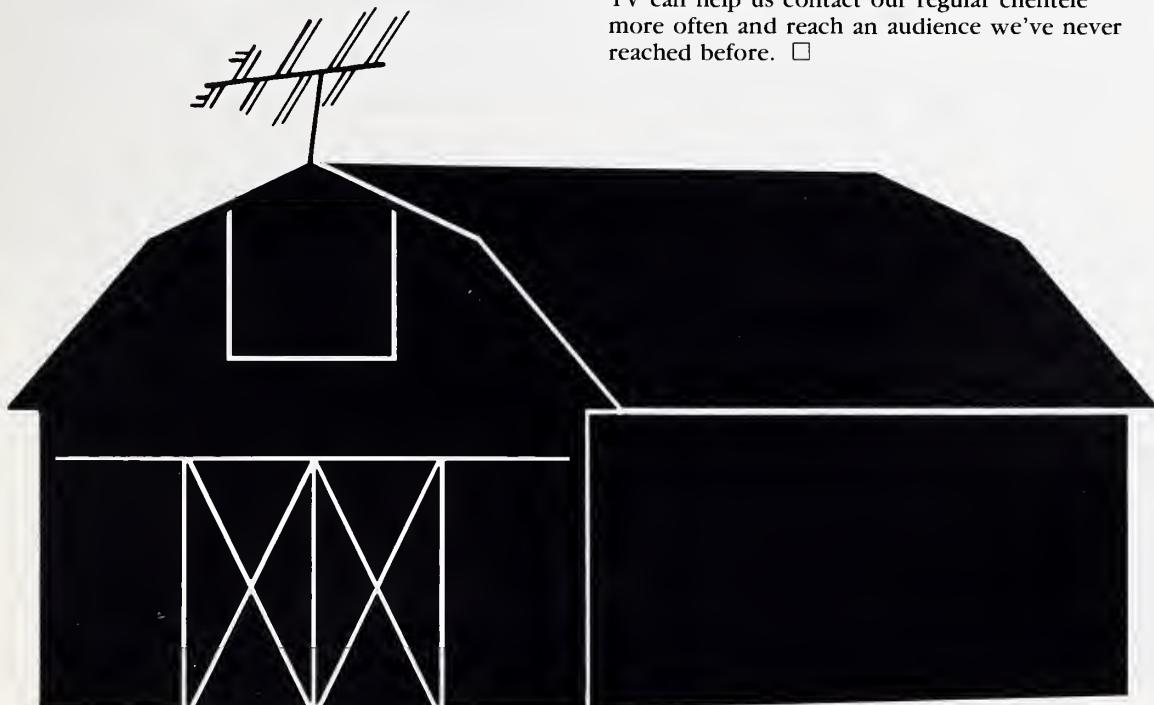
The first step in using television effectively is obtaining air time. Many discourage too easily when it comes to using this media for their message.

Extension is a fine source for a variety of agriculture information. When you know you have a news story that will interest the general public, contact the assignment director at your TV station and give him the details. Be willing to help the director line up interviews and be interviewed yourself.

Another method of getting your message across is to send the station brief news stories. In this case, "brief" translates to messages that take no longer than 20 to 30 seconds to read aloud. News stories that are too long are often rejected for that reason alone.

When it comes to Extension's educational outreach, TV will never replace group meetings, personal visits, radio, and the print media. But TV can help us contact our regular clientele more often and reach an audience we've never reached before. □

Mark Hall
Associate County Agent
Auburn University, Alabama



Boosting The Beef In Hawaii

24 Extension Review

June V. Gibson
Extension Publications
Editor
College of Tropical
Agriculture
University of Hawaii,
Honolulu



Beef production in Hawaii has been boosted by Extension's introduction of pasture management techniques which have proven successful to other American ranchers.

When Burt Smith, Extension specialist in livestock and pasture management, University of Hawaii, first arrived in the state 4 years ago, he found that few Hawaiian ranchers were practicing pasture rotation of cattle.

"This situation," Smith comments, "was probably due to Hawaii's tropical location and its isolation from the rest of the United States. Advanced information was slow to arrive in the islands. There were few places cattle ranchers could gather to share ideas and discuss new management techniques."

Because Hawaii's ranchers were isolated from regular updating, Smith points out, they had not been exposed to some of the latest ideas and practices. "In the past, Hawaii's ranchers suffered losses of time and money because many 'mainland' ideas proved inadaptable to Hawaii's unique tropical conditions," he says.

Newsletter

Smith began issuing a publication called the **Hawaiian Range Newsletter** containing infor-

mation on range management and related topics. The primary audience for the newsletter was cattle ranchers.

Smith knew how to talk the rancher's language. He had worked as a range scientist with the Forest Service, USDA, in New Mexico and before that as a rancher. This background enabled him to communicate easily with cattle raisers.

To demonstrate the benefits of an intensive management program in ranching, Smith started cooperative demonstrations with various ranchers. The demonstrations emphasized pasture management.

Grass Management Workshops

When these cooperative demonstrations were under way, Smith initiated an annual Grasslands Workshop. He invited Allen Savory, the developer of a grazing method bearing his name, to speak at the first all-day workshop held in 1981 in Kamuela, Hawaii. Savory urged intensive methods of grass management. He had ideas that appealed to ranchers.

The initial meeting sparked tremendous interest. Shortly after, several Hawaii ranchers accompanied Smith to a similar workshop on grass management held in Albuquerque, New Mexico. When they returned, some ranchers began implementing workshop ideas.

Employ Grazing Cells

Most important of these ideas was high-density grazing. Earlier demonstrations done in Hawaii had been encouraging. Ranchers found that high-density methods made sense, and the first grazing cell went into operation on January 1, 1982, on the Huehue Ranch in Kona, Hawaii. Several other ranchers followed suit, most notably the Kahua Ranch in North Kohala, Hawaii. It set up a "weaner" rather than a cow-calf operation.

A grazing cell is a configuration of individual grazing units (paddocks) most popularly wagon-wheel shaped. Other layouts are also used, depending upon the terrain and other factors.

With a typical wagon-wheel setup, the hub area—containing water, mineral supplements, and optional working facilities—is located at the center.

Each grazing cell is divided into 20 or more paddocks, with the animals left inside for no more than 4 days, often only a day or less. The exact amount of time depends upon the rate of grass growth.

Replenishment And Control

Controlled grazing—allowing animals to eat only what the rancher wants them to eat—gives each paddock up to a 95 percent rest period over a year's time. This gives the grass time to replenish itself.

An additional advantage of the method is control; the rancher knows where and what the animals are doing at all times. The high-density method also permits control of brush problems that previously required either spraying with a herbicide or bulldozer removal.

The chief aim in a "weaner" set-up is to put weight on young animals. Smith was able to use the weaner cell for demonstration purposes. He obtained useful information by checking weight gains every 30 days or so. A fourfold increase in beef production per acre was measured by Smith, findings which clearly demonstrated that introducing the cell-grazing method result in dramatically increased production in contrast to traditional methods of handling Hawaii beef cattle.

Costs Returned Quickly

PingSun Leung, assistant professor of agricultural and resource economics, University of Hawaii, compared the use of the cell-grazing method to traditional continuous grazing. His findings showed that the cell-grazing method supported 578 animals compared to 338 animals using traditional grazing, almost double the number on the same 338 acres of land.

The animals were able to gain the desired 200 pounds of additional body weight per head in 161 days compared to the former 299 days—almost half the time. The initial setup cost of a cell-grazing system on the 338 acres was \$31,000. It covered equipment, materials, fencing, and labor. This cost was returned during the first 9 months of operation.

To spread knowledge of improved cell-grazing methods, Smith has been giving 5-day workshops around the state. To date, over 160 people have been trained during seven workshops conducted on Hawaii, Kauai, Maui, and Oahu.

New Fencing

Along with improved grazing methods, a new fencing concept—the permanent power fence—is being recommended. Only two or three strings of wire are required. Posts can be made of various materials (wood, steel, fiberglass) and fewer are needed.

A mile of fence can be put up for one-fourth of the cost of a conventional fence, and two people can put up 3,000 feet or more of fencing in 1 day.

Cattle Numbers To Increase

Some ranchers have set timetables to meet new production goals using the new cell-grazing method. Kahua Ranch has a program which adds three grazing cells per year; plans call for the entire operation to be in grazing cells by 1986.

Parker Ranch on Hawaii has two grazing cells in operation and there are plans to add more.

"Most cattle ranchers will be adopting variations of the high-density grazing approach," Smith predicts. "It's very likely," he says, "that there will be a significant increase in the number of cattle in Hawaii within the next 10 years." □



New Mexico Solution: Specialty Crops

26 Extension Review

Rita A. Popp
Extension Media
Specialist
Department of
Agricultural
Information
New Mexico State
University, Las Cruces

No one seems quite sure what to call them—some people say “specialty,” others say “high value” or “alternative” crops. But whichever term is used when New Mexicans hear them they turn their heads and listen.

Growers are looking for ways to survive in farming. Some think specialty crops are the answer. Farmers know how to grow and market the traditional agronomic crops (cotton, alfalfa, grains, and sorghum), but with pumping costs for irrigation increasing, other inputs high, and profits slim, many are finding that traditional know-how is not enough.

Anything That Will Grow

In New Mexico, growers are talking about and experimenting with specialty crops. Under cultivation are pumpkins, raspberries, broccoli, cauliflower, tomatoes, lettuce, chile, cucumbers, pistachios, pecans, and blue corn—about anything that will grow in New Mexico's irrigated soil.

In some cases, they have joined with county Extension agents and specialists who are conducting variety trials of vegetables and fruits.

New Mexico State University (NMSU) researchers are looking far into the future, experimenting with such plants as guayule, a desert shrub from which rubber can be extracted. Plant genetic engineering projects are underway which could lead to highly desirable characteristics, such as the ability to use water more efficiently.

Less exotic, but drawing the interest of local people, are NMSU's afghan and ponderosa pine tree projects in the southeastern and northeastern parts of the state. NMSU faculty believe pines can be grown for the live tree and Christmas tree markets.





Boosts Agricultural Income

New Mexico statistics show specialty crops significantly boost agricultural income. NMSU Agricultural Economist Tom Clevenger found in 1981 that production of specialty crops amounted to only 6 percent of the state's 1.1 million irrigated acres. However, they contributed 27 percent of the estimated gross receipts from irrigated acreage.

Dona Ana County (NMSU's main campus location in southern New Mexico) led the state in per acre receipts in 1981. Specialty crops accounted for 34 percent of the 88,250 planted and irrigated acres. Per acre value without specialty crops was \$475, but with specialty crops it averaged \$972.

"There would appear to be potential," Clevenger says, "to enhance profitability on acres now in forage crops by growing specialty crops to get a

more a more efficient, economical crop mix for New Mexico."

A Dona Ana County family is succeeding with a vegetable crop mix that rotates seasonally. The Koenig family's operation includes a newly constructed packaging plant for crops such as asparagus, lettuce, spinach, onions, cucumbers, and bell peppers grown on 400 acres.

Evaluating Vegetables

In central New Mexico, Torrance County Agent Bill Neish, Farm Demonstration Specialist George Dickerson, and a local farmer evaluate vegetables, such as asparagus, broccoli, and cauliflower, that might be adapted to the shorter growing season of the Estancia Valley.

"Alfalfa profits vary from producer to producer," Neish says. "There is a \$75 to \$100 per acre return for a person's labor, and some people are projecting three to four times that much for vegetable crops. But we don't know what the yields will be on a commercial scale."

Promoting Chile

Whenever the subject of high-value crops is discussed, three issues surface: which specialty crops can be grown in New Mexico, how to grow them, and how to market them.

Chile production on a large scale is a recent phenomenon.

Production was so low in 1971, figures for chile weren't reported in the agricultural statistics. Last year the chile grown was valued at \$30 million. NMSU research has been responsible for developing many of the varieties presently grown commercially. Discussions at the 1984 Chile Conference focused on a proposed commission to support chile research, promotion, and market development to enhance profitability.

To boost agricultural income in the face of high production costs, New Mexico growers are experimenting with such "specialty crops" as pine trees for the Christmas market.

FARMERS-MARKET
 OPEN 7:00 AM
 EVERY TUESDAY
 ↓
 SATURDAY UNTIL
 FARMERS SELL OUT



Grapes are another specialty crop with recent plantings of more than 4,200 acres of mostly wine grapes. Since many of those acres have been planted by foreign investors with European experience, there is a question as to whether imported techniques will produce quality wines with large-scale markets.

Farmers and NMSU faculty agree that marketing high-value crops is a skilled specialty in itself and more marketing expertise is needed in the state.

Neish agrees: "Most farmers don't want to get into the hassle of marketing. They just want to grow the crop and have somebody give them a fair value price."

Need For Marketing Support
 Stanley Farlin, Extension assistant director for agriculture and resource development at NMSU, says Extension needs to learn more about growing and marketing specialty crops. "There is a real danger to Extension promoting new crops without proper marketing support," he says. "Right now, marketing systems don't exist for new crops as they do for traditional crops."

Extension administrators are quick to point out, however, that efforts are being made on several fronts to develop or acquire this expertise.

coming down from Colorado and buying vegetables," Utton observes.

"We will gradually see an increase in vegetable production for sale." Potential exists for growers to fit into a regional onion or lettuce market," Utton says, but he adds, "it would take organization."

In Eddy County in southeastern New Mexico, growers are raising more chile—about a 4-percent increase in production in 1983 compared to the previous season.

Eddy County Agent Dan Liesner is supportive of grower's wishes to try more productive crops such as chile. He is working on an afghan pine project and has been trying to find a market for machine-harvested tomatoes. Finding a marketing "window" for specialty crops is a key to success, he points out.

Liesner suggests that growers start small, perhaps planting 5 acres of pines, or a small crop of vegetables.

Optimistic Projections

"I think the interest in new crops is great, and when I talk to farmers who are interested, I encourage them. I am an eternal optimist and that's the only way we can be in farming," he says.

NMSU's Extension director also speaks of optimism and necessity. "I'm excited about the opportunity for New Mexico to become more involved in specialty crop production," John Oren says. "When we look at the tremendous costs of production in agriculture, we have to look at specialty crops to keep our farming operations viable. They can have a tremendous economic impact on New Mexico." □

State legislative funding will be sought this year for five new agricultural specialist positions—in marketing, vine and small fruit crops, vegetables and seed crops, tree and woody ornamentals, and crop demonstrations, according to John Oren, NMSU director of Extension.

In August, NMSU agricultural faculty and growers in the state toured the California agribusiness region. L.S. Pope, dean of the College of Agriculture and Home Economics, says New Mexico can learn much from its western neighbor. "California is successfully integrating agricultural programs, with processing tied to production," Pope says.

New Ideas

Another effort is a "thinktank" of Extension and research faculty and a New Mexico Department of Agriculture representative. Together they are considering marketing avenues for new crops. They are exploring the idea of an agricultural marketing company which would broker, buy, process, and sell New Mexico products.

In the northwest corner of New Mexico, for example, San Juan County Agent Orion Utton has worked with local people to establish two farmers' markets. "The area is becoming a trade center and people are

Mississippi Farms The Water

Jimmy Bonner
Extension Writer-Editor
Information Department
Mississippi State University

Cotton and soybeans may still be king of the hill in Mississippi agriculture, but some lesser known aquacultural enterprises are making their presence known in agricultural circles.

Although the individual value of catfish, crawfish, and other farm-raised species is well below that of big-ticket and traditional agricultural crops, the aquaculture industry adds an estimated \$175 million in farm value to the agricultural economy of Mississippi and provides thousands of jobs for citizens in the state.

The aquaculture industry in Mississippi includes farm-raised channel catfish, crawfish, long-mouth bass, bluegill, and bait minnows.

Extension is providing educational information materials based on proven research and management technology to producers in the industry to enable them to more profitably produce and market their products.

Newcomers To The Establishment

Catfish and crawfish are—relatively speaking—among the newest farm-raised enterprises in the state.

Almost all catfish produced in Mississippi are grown in the Delta area in the northwest part of the state.

Catfish production has increased progressively since its beginning in 1965. Acreage for catfish production grew from 25,000 in 1979 to 65,000 in 1983.

"Although the catfish industry is currently expanding at a slower rate," says Tom Wellborn, head of the Extension Wildlife and Fisheries Department, Mississippi State University (MSU), "it has main-



tained its reputation for year-to-year growth by climbing to a record 110 million in farm value in 1983. Extension educational programs have played an important part in this growth."

Local Processing

In Mississippi, catfish culture is an important industry because, unlike many other raw products that are processed out of state, essentially all Mississippi-grown catfish are processed locally. Twelve catfish processing plants are located in or around the Mississippi Delta which processed a record 140 million pounds of catfish in 1983.

Farm-raised catfish are grown in fresh-water ponds averaging about four feet deep. A typical catfish pond is about 17 acres. About 4,500 fish are stocked per acre.

Currently, primary markets for catfish are in the South and Midwest, although new markets are being developed as supplies increase.

Methods For Improving Yields

"A typical catfish pond yields about 5,000 pounds of fish per acre," Wellborn says. "Farmers have improved yields by using improved production, harvesting techniques, and water management practices recommended by Extension specialists."

In 1984, catfish prices paid to the farmer by processing plants reached an all-time high of 75 cents a pound.

Obtaining Meat From Byproducts

While catfish are sold primarily as whole fish and filets, recent industry developments are allowing processors to use byproducts once discarded as suitable only for pet food.

Extension food technologists have provided processors with the technology to obtain high-



quality meat from the frames of catfish after filets are removed.

"The meat, called minced catfish, is then used to make fish patties, fish sticks, and re-formed filets," says Gladden Brooks, Extension food technologist at MSU who helped develop the process.

Brooks estimates that 4 million pounds of minced catfish can be produced annually in the state, adding a retail value of \$5 million to the catfish industry. The new technology, he believes, may attract new industry and result in a wide range of processed catfish products.

Crawfish: Popular Delicacy

Crawfish production began in the state in 1980 and is providing added income for more than 40 producers with farms, for the most part, in the Mississippi Delta.

Crawfish (also known as crayfish, crawdads, or Dixie Lobsters) are a novelty in many parts of the country and a popular delicacy in parts of the South such as Louisiana and east Texas. Louisianians produce about 80,000 acres of the crustaceans, while Mississippians produce about 1,000 acres. Crawfish culture is Mississippi's newest aquacultural enterprise.

Critical Oxygen Requirement

Crawfish require specialized treatment to produce domestically, and, like catfish, need extra oxygen through the use of aerators when produced en masse.

Oxygen depletions can do away with an entire crop in less than 2 hours. Crawfish ponds are shallow, drained in May and June, and after draining, are tilled and planted in rice, grain, or other crops for crawfish to feed and forage on.

"We try to create a favorable growth environment for the crawfish—it's critical," says Randy MacMillan, Extension wildlife and fisheries specialist, headquartered at the Delta Branch Experiment Station, Stoneville, Mississippi.

Crawfish can reach marketable size in about 60 days after hatching in the fall with yields of live crawfish ranging from 500 to 1,500 pounds per acre. However, the production cycle is considerably more complex and time consuming than the 60-day growing period.

Both crawfish producers and Extension specialists believe that increasing consumer acceptance and the present market



availability provide the key to increasing its potential.

To meet the goal, a new research facility designed to study crawfish production has been established: the Delta Branch Experiment Station at Stoneville, Mississippi. The station is expected to provide vital production information to growers of the "Dixie Lobsters."

Seafood Boosts State Economy

The state's seafood industry is a boon to the Mississippi Gulf Coast. Shrimpers alone annually take about 5 million pounds from the Gulf of Mexico's shallow waters. While the dockside value of seafood pro-

ducts in Mississippi is approximately \$25 million, the total seafood industry adds about \$150 million annually to the state's economy.

"The seafood industry has been important to the Mississippi Gulf Coast for the past three-quarters of a century," says David Veal, head of Extension Sea Grant Advisory Services on the Gulf Coast.

The Sea Grant Advisory Service was organized in 1972 to help Gulf Coast seafood producers produce and market their products more profitably.



Strict Quality Controls

"While the national per capita consumption of seafood is about 12 pounds," Veal points out, "coastal residents consume about twice as much as inland consumers."

In addition to shrimp, the Mississippi coastal waters produce abundant quantities of oysters, crabs, finfish, and other seafood products. The Gulf Coast also has a large industrial finfish industry engaged in the manufacture of pet food, fish meal for poultry feed, and fish oil.

Researchers at Mississippi State University are testing the economic feasibility of producing fresh water shrimp in areas of the state outside the catfish-rich Delta and the Gulf Coast. If further studies support the profitability of producing fresh water shrimp, specialists hope this venture will provide another important source of income for growers and meet the demand for seafood products. □

Farm-raised catfish and crawfish are newcomers to Mississippi's aquaculture industry but they are adding to the state's agricultural economy and providing thousands of jobs.

Is There A Crop Doctor In The House?

Jere A. Brittain
IPM Coordinator and
Extension
Horticulturist

Clyde Gorsuch
Extension Entomologist

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Extension Plant
Pathology
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The big chills of '82 and '83 were not the only news in the South Carolina peach industry. Thirty-five peach growers paid Clemson Extension \$125,000 per year for scouting services on about 11,000 acres of orchards. The experimental, fee-based program, Peach Orchard Management Services (POMS), was the offspring of a federally funded pilot IPM project.

POMS originated in the three-county region known as the Ridge of South Carolina in 1980. Clemson added a second unit in the Piedmont region in 1981 and a third unit for Sandhill and Upper Coastal Plains growers in 1982.

POMS Services

Basic services provided by POMS were soil and foliar analysis for nutrients, nematode sampling and analysis, aerial photographs, tree inventories, pest monitoring, development of orchard histories, fruit quality assessment, and interpretive reporting and consulting.

The fee for the basic service package was \$12.50 per acre for bearing orchards and \$6 per acre for nonbearing or declining orchards. POMS growers with orchards meeting specific criteria could subscribe to "Reduced Pesticide Services" (REPS).

About 3,000 acres were required to support each of the four POMS technicians at the \$12.50 per acre fee. The technicians, who operated the program, each hold Master of Science degrees—two with degrees in horticulture and two with degrees in entomology. All were assigned to the county-district Extension system and received close technical support from four key specialists.

Observations And Conclusions

Clemson designed POMS as an experiment in delivering the Extension program to commercial peach growers rather than as a permanent feature of the Extension system. The following observations and conclusions are based on 8 years of combined experience with POMS, Peach IPM, and private consulting:

- There is a need in the South Carolina peach industry for direct and highly individualized information and advisory services, and a significant percentage of peach growers are willing and able to pay for these services.

- It is possible, although awkward at times, to deliver client-funded, individualized information and advisory services through Cooperative Extension structure.

- Operating a fee-based information and advisory service within Cooperative Extension sharpened the focus of the total Clemson peach program (including research, teaching, and regulatory).

- Nonparticipating peach growers benefited from POMS. Extension specialists, researchers, county agents, and administrators had tremendous feedback from growers through POMS technicians.

- POMS technicians probably should be listed on organizational charts at the level of area agents.

- "Matrix supervision" involving the district agent, the principal Extension pomologist for peaches, and county agricultural agents with multicounty fruit assignments seems appropriate.

Transfer Of Service To Private Industry

Clemson operated the POMS project until December 1983. Extension's withdrawal was part of a planned move to enhance the transfer of services provided by POMS to the private sector.

POMS was directly responsible for the formation of a 3,500-acre private consulting unit in the South Carolina Piedmont region. Edmond Taylor, a former POMS agent, initiated the transfer of a group of about 12 growers from Extension to private services in early 1983.

The Extension POMS units, totaling about 5,000 acres, remained in place in the Ridge and Upper Coastal Plains through 1983.

Further private consulting development, as well as maintenance of dynamic Extension and agribusiness services, will depend heavily on the ability of land-grant universities, such as Clemson, to train practical crop doctors.

Need For Crop Doctors

Program relevance will take care of itself with commercial growers if Cooperative Extension Services provide workers who are competent to suggest solutions for 90 percent of common crop problems. Two- or three-layered referral systems will not maintain credibility with these growers. They are going to call someone who can and will provide straight answers and opinions. They won't settle for information; they want strong advice from a trained and experienced crop doctor.



Janine Frazza, Extension agent, Peach Orchard Management Services (POMS), Clemson University, South Carolina, investigates a peach tree for signs of disease. POMS was an experimental fee-based information and advisory service aimed at commercial peach growers.

Training Resources Available

Resources are already available in our system for rigorous nonthesis, professional training. Well-directed internships and courses could tilt the system toward crop doctoring.

As the POMS project indicates, South Carolina peach growers want direct, practical services and many are willing and able to pay for them. Creating a new breed of crop doctors can help Extension meet these needs not only for peach growers in South Carolina but also for crop producers nationwide. □

HAYMARKET Is O.K., Oklahoma!

Dan M. Crummett
Extension
Information Specialist
Agricultural
Information
Department
Oklahoma State
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"We're getting \$10 to \$15 per ton more for our hay!"

"It's almost to the point we're getting too many phone calls!"

"Buyers don't question the protein content or other quality factors when the hay is listed on HAYMARKET!"

These are some of the enthusiastic quotes from users of Oklahoma's electronic alfalfa marketing system known as HAYMARKET after a year's experience.

The system, an outgrowth of cooperation of the Oklahoma Alfalfa Hay and Seed Association (OAH & SA) and Extension specialists at Oklahoma State University (OSU), listed more than 10,000 tons of quality tested alfalfa hay during its first 15 months of operation.

Through the first full year, HAYMARKET handled 68 lots of hay from 29 sellers at a seasonally averaged price of nearly \$94 a ton. In fact, the system has been so successful, it could be self-defeating.

Successful Contracts

"Numerous producers listed and sold one lot of alfalfa on the system," says Loren Rommann, Extension forage specialist, "and, as a result, their entire production for the year has been contracted!"

"In 1983," Rommann says, "one producer contracted his entire 1984 crop. Now he has no need to list again this year."

Rommann recognizes that that's what the HAYMARKET electronic marketing system was designed to do: bring buyers and sellers together with a quality tested product and let the bargaining set the price.

HAYMARKET's history goes back a few years.

Background

In July 1982, as they mapped out plans to combat publicity about blister beetles in Oklahoma alfalfa, one of the directors of the OAH & SA remarked: "Even though we can do an excellent job of producing alfalfa, marketing is our biggest problem!"

Even before 1982, agronomists at OSU saw the need to "certify" alfalfa in a fashion similar to grains.

Then, in the summer of 1982, OSU hired a new coordinator, Gerritt Cuperus, for the Integrated Pest Management program whose background included experience on a dairy farm and graduate research on alfalfa insects.

Next Step: Marketing

"After our visit with Cuperus," Rommann says, "we decided marketing was a logical extension of the production programs in which we both were involved."

At that time, after much discussion, the program was condensed: the crop would be sampled and evaluated by an unbiased third party with a charge paid by the producer. Mandatory test factors would include a protein and moisture analysis by the OSU Agronomic Lab, a color rating, estimate of maturity, and percentage of foreign material. Basic information, such as cutting dates and tonnage, would be obtained from the producer.

"At this time," Rommann explains, "Extension Marketing Specialist Clem Ward began working with the program to analyze data gathered from reported sales."

Program Publicized

The program was publicized and the farm and popular press reported details, and announced a startup date of January 1, 1983. The publicity drew immediate response. Many callers were surprised to see alfalfa for

sale in the middle of the winter. The first HAYMARKET printout was mailed in February to those who had inquired about the initial stories.

Soon afterward, members of several state, regional, and nationwide farm publications attended an informal field day and demonstration of the system. The coverage of this field day, held at Grady County OSU Cooperative Extension Center in Chickasha, Oklahoma, boosted an already popular program.

"Of course this has been a boon to producers, but buyers like the service, too," Rommann says. "They appreciate being able to find quality hay without driving all over Oklahoma. Several have even offered to pay for the service!"

In addition, HAYMARKET has been a tremendous educational tool in Oklahoma.

Payment For Quality

"Traditionally, few alfalfa producers tested hay for quality," Rommann points out. "But with this system, producers can get paid for producing higher quality forage, and HAYMARKET encourages them to do so with the mandatory testing provision."

A San Antonio, Texas, firm—National Hay Exchange—has worked closely with Oklahomans in forming the first privately owned systems. Also, Control (Control Data and Cenex) has obtained the details of the program with the idea of starting a similar system in Minnesota.

"The success of HAYMARKET, however, goes to the people involved," Rommann says. "The growers, the buyers, the county, area and state Extension personnel, and industry representatives have all helped to increase the efficiency of marketing quality alfalfa." □

Database Curbs Crop Diseases

Florida growers and county agents are responding faster than ever to crop-threatening pests and diseases by obtaining immediate access to up-to-date agricultural information from FAIRS, the Florida Agricultural Information Retrieval System. FAIRS is a statewide database developed 3 years ago by scientists at the Institute of Food and Agricultural Sciences (IFAS) in Gainesville, Florida. The Kellogg Foundation provided funds through SHARE (Special Help for Agricultural Research and Education), part of the University of Florida Foundation.

Crop And Pest Database

Last June, Kellogg funded phase two of the computerized crop information delivery system. In phase one, IFAS scientists developed a soybean, tomato, and citrus crop database. The second phase will expand the database to cover strawberries, avocados, limes, and mangoes.

Through FAIRS, many growers and county Extension faculty have instant access to crop and pest control information through computer terminals in their offices or homes. Virtually no computer experience is needed to use the system. Growers and Extension faculty can retrieve agricultural information from an extensive electronic library; they can diagnose crop production problems; and they can obtain recommendations designed for their individual situations.

Easy To Use

"From the start, software design has been geared toward simplicity of use," explains Fred Johnson, FAIRS project director and entomologist. "Now, with the software basically in place, we are ready to share the engineering of the system with other states so they can build databanks to fit their specific needs for food and fiber production."

The system was planned originally to disseminate pest

control information but, according to Johnson, "We decided if you're going to provide information on pest problems, why not go a step farther so a farmer will have information on the entire production process?"

Johnson believes that access to FAIRS through office or home computers will improve communications between agents and growers. "The agent's job is to educate people and disseminate information. This system will help them do that," he says.

Updating No Problem

FAIRS has other advantages. As Johnson points out, "It doesn't take up a lot of space and it's easily updated." Corrections can be made instantly. Nor does FAIRS require any special training. "The system we designed is unique," Johnson explains, "and extremely user-friendly. You don't have to go to classes or understand any of the computer languages. In just a very few minutes you can get information on any disease or insect—the kind of information that would take hours to find going through the literature." Preparing a user-friendly system can be expensive. Such a system must be compatible with people's needs and be able to retrieve information quickly.

Often, this requires intricate engineering and complicated design. However, a quickly developed, less expensive program would have required much more effort from the user.

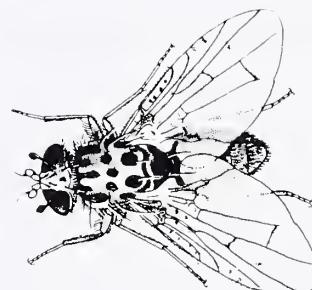
In the long run, information costs will be reduced because of the new system. The system will eliminate mailing out lengthy publications at substantial expense. The system will not replace all publishing but it will reduce the need for many reports.

Simulated Specimens

Other uses for FAIRS include



Maeve McConnell
Visiting Extension
Agent
Institute of Food and
Agricultural Sciences
University of Florida,
Gainesville



graphics capability. This feature permits farmers and agents to identify specimens by comparing them with the computer simulation.

Sharing The New Technology

How are agents and growers responding so far to FAIRS? They like the system and use it frequently. Their constructive criticisms have enabled system designers to improve its operation.

Other potential users are extremely interested. The agreement with the Kellogg Foundation includes sharing the technology.

Last year, over 30 demonstrations of FAIRS made lasting impressions on groups from states and countries. The most frequently asked questions are: "How do I use it?" and "How can I buy it?"

If you would like more information on FAIRS, contact Fred Johnson, Entomology Department, University of Florida, by phoning (904) 393-1938. □

“Pick-Your-Own”—A Growing Farm Market

36 Extension Review

John W. Counter
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Small Fruits and
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University of Illinois
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Nothing beats fresh field-ripened fruits and vegetables, and to get them, increasing numbers of consumers are turning to pick-your-own farms. Not only are consumers saving money by picking their own produce, but producers are increasing their incomes.

Strawberries are a good example of this boon to growers. Illinois strawberry acreage was declining steadily until 1968. With the help of Illinois Extension, direct consumer harvesting was promoted and now strawberry farmers are harvesting 96 percent of their crop this way. The number of farms growing strawberries has increased by 40 percent in the last 10 years.

Strawberries Lead The Way
As labor shortages increased on Illinois strawberry farms in the early 1960's, the need for alternative harvesting practices became apparent.

Extension helped current and potential strawberry producers deal with this situation in a number of ways:



- Introduced marketing topics and advertising workshops into the programs of the Strawberry School, run by Extension at the University of Illinois. Previously the curriculum was almost exclusively production oriented.

- Encouraged customer harvest of experimental plots at the Dixon Springs Agricultural Center in southern Illinois.
- Began studies of customer demographics on pick-your-own farms in 1969 and conducted extensive studies in 1970 and 1978 to 1980.

Guidelines And Concepts
In addition, Extension conducted studies of innovative strawberry farms throughout the United States and Canada and prepared guidelines to help farmers improve their pick-your-own selling techniques.

Many farmers found that learning to grow their best berries specifically for consumer harvest required a totally new perspective. Many at first were negative and felt that a consumer harvest would not work because consumers would damage the plants and not pick the field clean.

But, as it turned out, people appreciated the opportunity to pick their own berries and did a good job when given courteous supervision.

Other Popular Crops
A wide range of fruit and vegetable crops is sold through pick-your-own. Among the most popular crops are: strawberries, blueberries, raspberries, blackberries, cherries, beans, peas, tomatoes, and greens.

Most of these crops require intensive labor before they can be harvested and prepared for terminal wholesale markets.



Obviously, pick-your-own farmers must be customer oriented. The challenge is to plan field layouts, train employees, set prices, advertise, and learn how to deal with the public. Often, the business is a family enterprise.

For a successful pick-your-own operation it is important to choose a convenient location near a relatively large population accessed by good roads.

Farm Trade Areas

Extension data shows that 1 acre of strawberries can be marketed to a rural population of 2,500 people within 20 miles of the farm. The ratio changes on operations near big cities: 1 acre of pick-your-own for a population of 10,000. Many city residents may not know of the opportunity, or lack transportation.

Farmers use these trade area projections to expand their present acreage, discover new opportunities, and pinpoint overly competitive locations.

To enable farmers to increase their advertising skills, Del Dahl, head of Extension agricultural communications at the University of Illinois, helped to develop and implement an ad-

vertising program farmers could afford. As a result, one farm, serving as an advertising case study, doubled sales within a 2-year period.

Direct marketing is now a viable option for both large and small growers who properly assess their "trade areas"—an Extension-developed concept to predict consumer buying potential within locales. Small growers, for example, have reported gross sales of \$3,000 to \$4,000 per acre for the 5 to 8 acres of strawberries they raise for local consumer harvest.

Extension Aid

Extension helps farmers improve their direct marketing in many ways. Invitations are extended to leading horticulturists, economists, and marketers to speak at winter schools in Illinois.

Extension publishes proceedings to document the educational programs, and these, along with horticulture fact sheets, provide every county with recent Extension recommendations for its clientele.



Extension cooperates with the Illinois Department of Agriculture to develop directories of pick-your-own farms for the general public.

Benefits Of Direct Markets

Consumers like pick-your-own farms because of the freshness of the produce and the family recreational aspects. On an Extension survey, a customer made the following comments:

"Ever since moving to southern Illinois, we have enjoyed the benefits of harvesting fruit on pick-your-own farms. Newspaper articles alert us to picking dates, farm locations, and crop conditions. County Extension 'talk' programs on local radio have been educational on the subject. We will continue to patronize pick-your-own farms because they are an economical alternative to soaring food costs, recreational for the entire family, and because we feel nothing beats *fresh* fruit!" □



Onfarm Demonstrations: Proof For Profit



C. Richard Maples
Extension Specialist,
Agricultural
Communications
University of Arkansas,
Little Rock

To prove that existing technology can maximize crop yields and profits Arkansas Extension is conducting on-the-farm trials in the state's cotton, soybean, and rice fields.

"Research Verification trial" is a term coined by W.J. Moline, Arkansas Extension director, to describe an effort to combine today's technology from the various disciplines into a crop production package which fits the farmer's situation.

Cotton Trials

Efforts to develop optimum crop production programs for individual fields began in 1980 with the High Yield Cotton Verification Trials.

The project was funded by a grant from the Ben J. Altheimer Foundation, a private organization established by an Arkansas cotton farmer.

Extension cotton specialist William E. Woodall was named project leader and assigned to work with an advisory committee comprised of Arkansas Research and Extension faculty members. The group selected five fields and developed an optimum cropping program for each.

The project leader worked directly with the farmer to make timely, yield-enhancing management decisions.

Approach Pays Dividends

After the first year of the cotton trials, it became obvious that an interdisciplinary approach to developing crop recommendations would pay big dividends to the farmer.

During the first 3 years of the trials, yields averaged 879 pounds of lint per acre, compared with a statewide average of 486 pounds. Returns per acre on trial fields averaged \$203.58 during the same period.

The High Yield Cotton Verification Trials are still going strong in 1984. The number of trial fields has doubled from 5 to 10. As cotton production programs have been refined, yields and income have continued to increase.

Similar Trials For Soybeans

With the success of the cotton trials, a similar program began in 1983 for soybean producers. The project was funded by the Soybean Promotion Board, which administers volunteer grower check-off funds.

As in the cotton trials, a project leader, Michael Erstine, was assigned to work with the farmers. Erstine and an advisory committee of Arkansas Research and Extension faculty members selected four fields and developed total production programs for each.

Yields High Despite Drought

Soybean yields on the trial fields averaged 54 bushels per acre in 1983, a year when drought cut the statewide average yield to 17 bushels per acre. While irrigation was responsible for much of the difference, the trial fields still averaged from 8 to 17 bushels per acre more than adjacent irrigated fields with the same soil types.

With \$8 soybeans, the 8- to 17-bushel increase meant an additional \$64 to \$136 of income per acre attributable to factors other than irrigation.

Rice Trials

Arkansas leads the Nation in rice production, but yields have generally declined since 1971, when per acre yields peaked at 5,050 pounds.

In 1983, Rice Research Verification Trials were financed by the Rice Research Board, which administers grower checkoff funds, to verify current University of Arkansas recommendations and identify areas where additional research was needed.

The Research and Extension Advisory Committee and Bobby Huey, Extension rice specialist and project leader, selected five fields in central and eastern Arkansas for the trials.

Despite a late start, the 1983 rice trials were successful. Yields on the five trial fields averaged 5,376 pounds per acre, 25 percent above the state average.

Evolution Of The Trials

Since 1980, when the cotton trials began, the Arkansas Research Verification Trials have been refined to meet the needs of the state's farmers.

One of the more beneficial changes may, on the surface, appear to minor to the casual observer. In 1983, county Extension agents began monitoring fields and working directly with farmers to improve the timeliness of management decisions.

Increased participation of county staffs in the verification trials paid immediate dividends. Agents who worked with state specialists to develop management recommendations were able to share their knowledge with farmers outside the program.

The Bottom Line

Arkansas' research verification trials for cotton, soybeans, and rice are not contests to grow record yields. Long-term analysis of production costs is an important part of the program.

The trials have shown farmers that University of Arkansas recommendations can improve financial returns as well as yields. □

Wheat Demo Plots— Better Than Ever!

One of the oldest Extension teaching methods—demonstration plots—is back in use as a unique Extension program to inform Oklahoma wheat producers on recent varieties and modern crop management methods.

When Extension work began around the turn of the century, demonstration plots were the key to convincing growers of research-backed methods. Today, demonstration plots are few and far between—especially for growers who hope to see something other than just variety trials.

"We had scores of variety trials," says Roy Johnston, former Extension wheat specialist with Oklahoma State University (OSU), "... the only problem was, varieties were all we could show."

Also, Johnston says it was difficult to interest farmers in seeing the plots. "We decided to get them to come out," he says, "and show them something that works . . . that meant field demonstrations that would show them reliable, regionally specific production information."

Fund Demo Centers

With that in mind, OSU agronomists went to the Oklahoma Wheat Commission with a proposal for funding several Wheat Production Demonstration Centers across the western part of the state.

"We wanted to establish several of these sites to fill in the gaps where we didn't have experiment stations," says Jim Stiegler, OSU Extension agronomist. "We had variety trials 'all over the state' but we wanted sites where growers could do some 'one-stop-shopping' for information on proven methods. We wanted a place where growers could come at any time during the season to monitor various ways of growing wheat."

In late 1982, the Oklahoma Wheat Commission supported the idea and provided initial funding. Because of the late season and droughty conditions at that time, the specialists decided to wait a season.

Found Cooperative Growers

"We used the time to find sites across western Oklahoma which had the land and soil types we needed, and cooperative growers who had the desire to work on such a project," Johnston says. "Also, we had to find growers who had the proper equipment to do the different tillage methods we wanted to demonstrate."

Praising the growers working with the project, Johnston says, "Their cooperation is vital. After all, these folks are essentially sacrificing this land for the 3 to 5 years' worth of tests. In addition, they are taking rainfall data for us and, in some cases, providing the labor!"

In all cases, the cooperators voluntarily refused any compensation for their time and the nearly 30 acres of land used in the tests.

Tillage Sections

"Although each site is different, all are divided into two sections—standard tillage and Lo-Till methods," says Gerrit Cuperus, Extension integrated pest management specialist, who has been working closely with the project since its inception.

"Also, each site has an economic study which includes several varieties grown under four different conditions," he explains.

"On one, we try for maximum economic yields . . . (we're shooting for 100 bushels per acre dryland). There, plant growth regulators, fungicides, field scouts, and other management tools are used to enhance production.

"Another involves the methods recommended to reach 1.5 times the county yield average; another is grown to reach the county yield average and the other is 'zero input,'" he says.

Within each of the tillage categories growers can observe a total of 26 treatments—each representing a management method, he added.

Results

The success of the program is building as word travels about the work done on the sites. This spring, more than 80 growers attended each of the four formal guided tours of the plots.

"These successes are the results of a cooperative venture," says Johnston, "It's not just OSU, it's not the Wheat Commission, and it's not just the farmers. It's the result of all three of these groups working together!" □



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Oklahoma State
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Profits Up, Inputs Down

40 Extension Review



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A growing acceptance of integrated pest management (IPM), organic practices, minimum tillage, and the "prescription" approach to crop production is changing the face of agriculture in Virginia.

"Cutting down on input costs is the only way for many farmers to survive right now," says James Moore, Extension farm management specialist at Virginia Polytechnic Institute and State University (VPISU). "Virginia farmers haven't recovered from the 1980 and 1983 droughts. They are working toward the highest net profit with fewer inputs."

Economic pressures, he says, are resulting in farmers using more sophisticated management techniques. They are turning away from routine cultivation and spraying practices. Most farmers are searching for proven ways to keep yields up as they cut inputs down. Extension specialists at VPISU advocate the use of nematode assay, and field scouting to determine what kinds of weeds and pests are present before applying lime, fertilizers, and pesticides.

Holistic Approach

What farmers are discovering is that to farm well with fewer chemicals, it's impossible to separate the crop from the rest of the environment. To succeed in the new style of management using what is termed "the holistic approach," means becoming a scientist who looks at the soil, crop, insects, diseases, and weeds as an entire interdependent system.

John Luna, Extension entomologist at VPISU explains that integrated pest management is a pest control system founded on the holistic approach.

It is very popular with farmers, and, he says, through IPM they are finding that working with nature as much as possible can be very profitable. "One thing we're finding in integrated pest management," Luna says, "is that you can rarely solve a pest problem without looking at the entire farming system."

IPM brings farmers, or specially trained insect scouts of the County Farm Bureau into the fields to count both harmful and beneficial organisms. Only when numbers of the "bad" bugs reach a certain population level does spraying take place.

Soybean Program Works Well

Integrated pest management has been a great success in Virginia's soybean growing areas thanks to strong leadership by county agents, says William Allen, Extension's agriculture program leader.

Richmond County Agent Pete Newsome has won recognition for his work in IPM. He began trying to get interest in an IPM scouting program in the



1970's by sending letters. It wasn't until he visited the cash grain farmers personally that he got participation. Now 90 percent of the cash grain farmers in his county use IPM methods.

Biological Control

Newsome and many other county agents are also involved in biological control methods.

In many cases, biological controls can bring the pest populations down to reasonable levels. For instance, tiny parasitic wasps of a particular species are released by the thousands in Virginia every spring. Smaller than a typical gnat, they lay their eggs in the larvae of Mexican bean beetles, a major soybean pest. Other species of wasps attack cereal leaf beetles, which plague small grain crops. Thanks to the wasps, populations of these pests have been greatly reduced.

Raised by the Virginia Department of Agriculture and Consumer Services, the wasps are released in farmer's fields free of charge by Virginia Extension agents.

Safer Pesticide Use

Chemical spraying remains an integral part of the IPM approach, but what's significant is that spraying is done only when required.

"If large areas are sprayed repeatedly, pests may develop resistance. A product which knocks them dead one year can be ineffective a few years later," says Robert McPherson, an entomologist who heads the state's IPM program for soybeans.

Extension, Luna believes, can help growers implement use of these safer, low-toxicity insecticides. "Many farmers don't realize there often are less toxic alternatives to what they're using," he says. "We can help them choose these alternatives."

"Virginia farmers have come a long way in safe application of pesticides and using lower rates," adds McPherson. "Many farmers and custom applicators now attend clinics and workshops on safe, effective chemical use."

Another Systems Approach

Reducing unnecessary fertilizer use can be a way to cut costs.

In many cases, organic or biological farming practices, also a systems approach, could be an answer. Animal manures, green manures (crops grown to plow down for organic matter), and crop residues are cycled back to the soil in organic farming, then winter legumes such as Austrian winter peas, hairy vetch, or crimson clover, are grown to provide nitrogen to the following crop. The result is a more fertile soil which needs less fertilizer to produce a crop.

Resolution Passed

The Virginia legislature recently passed a resolution encouraging the Virginia Cooperative Extension Service and the State Department of Agriculture to make more information available on organic methods and for the land-grant universities to conduct more organic farming research.

To address the issue, researchers and Extension specialists at VPISU have formed a Biological and Organic Farming Committee. "We're compiling a list of publications already available on organic methods, and will then make some recommendations about what new research needs to be done," says Committee Chairman William Allen.

Minimum Tillage Saves Soil

Another popular movement in Virginia agriculture is also based on preserving the land. No-till and minimum-till farming are helping to save the rapidly eroding soil of many Virginia counties, making production possible on hilly acreages and greatly reducing erosion where this practice is used.

"The number of acres of no-till forage planted in Virginia rose from essentially none in 1981 to 27,000 acres last year," says Harlan White, Extension forage specialist at VPISU. Corn and soybeans have also taken off as no-till crops in Virginia.

Unfortunately, potential for weed and other pest problems may increase when planting into unplowed land, so pesticide use may be in-

creased to keep production up under no-till, White points out.

Computer Weather Monitoring

Six years ago in the Tidewater region of Virginia, J. Ernest Wrenn, Extension county agent, noticed the narrow profit margins of local peanut farmers and wondered what could be done. The result today is a growing movement which emphasizes that every farm has different "best" management practices which will keep a farmer's land and profits healthy.

Called prescription farming, it is based on computer weather monitoring. Under this system, microcomputers receive information on rainfall, air, soil temperature, wind speed, and solar radiation for a grower's location. The computer model can then predict disease outbreaks for that location and decide if the time is right for planting and harvesting.

"Many farmers can reduce spraying for leaf spot from six to two applications during a season if they follow our computer weather advisories," says Allen Allison, Extension peanut specialist who helped develop the prescription program.

Peanuts And The Total System Approach

"Peanut farmers have traditionally used far more herbicides than they needed," Allison says. "We're eliminating the shotgun approach to weed management and applying more selective herbicides. More than ever, farmers are coming to us with weed identification problems."

"The entire Virginia peanut producing area used to have the same basic recommendations for chemicals," he says. "We're trying to move from that extreme to a total systems approach. Pest scouting, accurate seeding recommendations, and soil testing for nutrients and nematodes are all part of prescription production. So far, we've only scratched the surface."

New Concerns

There is another motivation for cutting back on chemicals in peanut country. "Farmers are concerned about Chesapeake Bay," Allison says. "They realize that agricultural chemicals have had some part in damaging it. They want the water to be clean again. They have a definite concern for environmental quality."

Farming in Virginia appears to be changing, but what does it mean? "In the past, we've only looked at our ability to get high yields in the short term," says John Luna. "Now, we're beginning to take a look at the long term effects of our production system as we seek new means for profitability." □



A "prescription" approach to crop production is altering Virginia agriculture. Integrated Pest Management (IPM) cuts down on expensive chemical inputs and is seeing growing acceptance among soybean growers and other cash grain farmers.

Paying For Services Pays Off

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Farmers in every state can benefit from Extension activities supported by federal, state, and local taxes. But Illinois soybean farmers are benefiting from an Extension project designed especially for them that is rather unique—the farmers have been paying for it themselves from their personal soybean profits.

Through the state soybean checkoff program, Illinois farmers contribute one-half cent per bushel from proceeds of soybeans sold. The money is collected and disbursed by the Illinois Soybean Program Operating Board (ISPOB), composed of 18 farmers. In August 1977, ISPOB began donating a portion of this money to support a Soybean Extension Project at the University of Illinois.

Serving Needs Of Growers

The project is staffed by a full-time Extension specialist in the University's Agronomy Department who devotes 100 percent of his time to soybean Extension work. Previously funds were not available to support such a position.

Working on a full-time basis, the specialist has the time and support needed to perform numerous activities beneficial to soybean growers. When field days are held by the Agronomy Department, the specialist provides expertise on soybean subjects, such as cultural practices and new varieties.

County staff now have a specialist to call on when planning sessions on soybean topics. Variety demonstration plots, also organized at the county level, offer soybean growers an opportunity to gain more from their investment in Extension since the soybean specialist is often directly involved.

Benefiting From Applied Research

The ISPOB grant also supports applied research beneficial to soybean growers. Plot work provides data useful to growers in evaluating alternative cropping practices to help maximize yield and profit. The trend toward using narrower rows has raised questions by growers on soybean variety versus row-space interaction. Extension organized a 3-year, three-location study that will help growers estimate yield responses from different varieties, as rows narrow to decrease non-cultivated spacings.

Soybean Publications

Several new publications have been published for soybean farmers as a result of the Soybean Project. "Narrow Row Soybeans: What to Consider," is used extensively by county staff in counseling growers. The soybean specialist also uses the publication at various meetings as an educational handout piece.



A major contribution to published information available to Illinois growers is *Illinois Growers' Guide to Superior Soybean Production*, the result of a multidepartmental effort coordinated by the Soybean Extension Project. ISPOB provided a special grant for the initial printing of 35,000 copies.

Many soybean varieties are now on the market. To help growers compare varieties and choose the most profitable soybean for their operation, Extension initiated an annual survey of soybeans available in Illinois. The current survey contains nearly 400 variety descriptions and is provided to growers free of charge.

Continued Support Needed

From 1977 to 1982, ISPOB grants completely covered operational expenses as well as the specialist's salary for the Project. The initial grant specified, however, that the University would assume financial responsibility of the Project as funds became available. In 1982 to 1983, Illinois paid half of the specialist's salary.

Funding Of Future Projects

The Soybean Extension Project offers diversified services for Illinois soybean growers, helping them maintain a profit from their crops. What's unique is that growers have provided most of the funding. In a period where tax dollars are shrinking in buying power and becoming less available to the Extension Service, new and alternative ways of funding are needed. Producer organizations, such as ISPOB, must be considered for supplemental, if not full funding.

Admittedly, every program area in Extension may not have a grower or industrial group to support activities. In the crops and livestock area, however, grower organizations and industry associations do exist that can provide support. The key to obtaining funds may be as simple as identifying such groups and illustrating to them the potential benefits gained by supporting Extension projects. □

Action-Packed Ag Media Days

Have you got the whole story on agriculture? Media representatives in Nebraska do.

This fall's annual Media News Day drew a record number of print, radio, TV and wire service correspondents to the Lincoln campus for a comprehensive update on agricultural programs and related economic issues.

A new format, increased marketing and advertising, and high staff involvement throughout the Institute of Agriculture and Natural Resources (IANR)—all added up to excellent media response and participation. Thirty representatives from 26 media organizations across the state attended the 1-day seminar.

A team of staffers from the Department of Agricultural Communications developed and managed the program; James Randall, broadcast specialist, chaired the team. Reporters were welcomed with a brief orientation at the Agricultural Communications building. Next they divided into sections (radio, TV, and print) and were transported to concurrent sessions in three exciting research areas on campus. The groups rotated sessions every hour.

Tours

At one stop on the tour, George Meyer and fellow researchers at the University of Nebraska bypassed Mother Nature to breed plants and promote growth. Media representatives observed chambers where computer-fed Nebraska weather data.

The one-of-a-kind Nebraska Tractor Testing Lab was another tour stop. There, Lou Leviticus and staff test American and foreign tractors on an outdoor oval track and indoors with sophisticated testing equipment. While Nebraska is the only state to prohibit by law tractor sales without prior testing and passing, people worldwide look to

this lab for valuable data when buying farm equipment.

A group of viruses, discovered by Jim Van Etten and other Nebraska researchers, may open the door to biotechnology at IANR. These viruses replicate and infect lower plant life, and they possess characteristics that may be useful in transferring genes to plants.

At each tour stop, reporters conducted on-the-spot interviews, taped show segments, and photographed the researchers in action. A noon luncheon gave media reps an opportunity to meet key IANR administrators and faculty, other media colleagues, and ag communications staffers.

Farm Income Controversy

The afternoon session featured Michael Boehlje, a thought-provoking ag economist from Iowa State. Boehlje addressed the dual topics of financial stress and public policy as they relate to today's farm income problems. His proposed solutions provoked many diverse reactions from panelists selected to respond to his presentation. These included: Mark Drabenstott, senior economist, Federal Reserve Bank of Kansas City; Richard Gady, vice president, ConAgra, Inc.; Bryce Neidig, president, Nebraska Farm Bureau Federation, and Martin Strange, co-director, Center for Rural Affairs, Nebraska.

Media reaction and responses to the financial management session and morning tours were extremely favorable. "To focus on a special issue and bring divergent interests in an open forum is a definite plus," said Robert Bishop, editor of the *Nebraska Farmer*. "It's also an opportunity to meet and interact with other agricultural communicators and Nebraska faculty and to explore ideas, issues and areas of concern."

Roger Flemmer, associate farm editor, KFAB radio, agreed, "Media day is an investment in our program—an opportunity to investigate areas in agriculture that we don't often cover."

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Mississippi Media Event

Fourteen key newspaper executives (editors and publishers) attended a 2-day media event in Mississippi, reports Ralph Ballew, leader, Extension information. Extension Administration hosted the meeting with Barry Jones, managing editor, news, providing overall leadership for the event.

Representatives heard presentations on key Extension program areas and agri-business issues and concerns. The group also toured the Extension Center, including the Information Department, and discussed print media work and future computerization plans with staff editors.

"These key newspaper executives, who are state opinion leaders, now have a better understanding of Extension and its mission," says Ballew.

KSU Media Day

An appearance by Secretary of Agriculture John Block highlighted the second Ag Media Day program on the Kansas State University (KSU) campus says Gary Vacin, head, Department of Extension Information.

The 2-day event is sponsored by the College of Agriculture, Cooperative Extension Service, and the Agricultural Experiment Station. Thirty-three media representatives from print, radio, television, and the wire services attended the program, which featured a presentation and panel on "Fats and Oils in Human Health: Separating Fact from Fiction"; an audio-visual presentation by award-winning photographer, Jim Richardson, *Denver Post*, and more than 90 one-on-one interviews with 32 of KSU's top faculty. □

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